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ABSTRACT

A study examined unemployment among Australian young people between 1980-94, using data obtained from the four Youth in Transition cohorts born in 1961, 1965, 1970, and 1975. It investigated factors that influenced becoming unemployed and leaving unemployment. Findings indicated that low school achievement in literacy and numeracy was consistently associated with youth unemployment, with effects continuing through to age 33; year 12 completion reduced incidence of unemployment, especially between ages 18-22; post-school qualifications were of little benefit in preventing unemployment; men were generally more likely to become unemployed and were less likely to become unemployed and to exit unemployment compared to women when post-school qualifications and labor market experience were taken into account; age had a strong effect, with older young people less likely to become unemployed; background characteristics, such as socioeconomic background and ethnicity had moderate effects on becoming unemployed; the national unemployment rate for the whole labor force had a positive relationship with youth unemployment in the two older cohorts; and influences on duration of unemployment were school achievement, year 12 completion, having a degree (at age 22), marriage, and, especially, unemployment experience. (Contains 24 references, 10 tables, and 11 figures.) (YLB)

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Research Report Number 7

Factors Influencing Youth Unemployment in Australia: 1980-1994

Gary N. Marks
Nicole Fleming

September 1998

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FACTORS INFLUENCING YOUTH UNEMPLOYMENT IN AUSTRALIA: 1980-1994

Gary N. Marks
Nicole Fleming

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EXECUTIVE SUMMARY

This paper examines unemployment among Australian young people between 1980 and 1994. The data are obtained from the four *Youth in Transition* cohorts born in 1961, 1965, 1970 and 1975. We investigate the factors that influence becoming unemployed and leaving unemployment. The factors examined in the analysis of becoming unemployed include social and demographic background factors, the national unemployment rate, school factors including school achievement, post-secondary qualifications and unemployment history. Gender, school achievement, well-being, year 12 completion, marriage and post-school qualifications were investigated as influences on unemployment duration.

The main findings from this study are as follows:

- Low school achievement in literacy and numeracy was consistently associated with youth unemployment, with effects continuing through to the age of 33;
- Year 12 completion reduced the incidence of unemployment, especially between the ages of 18 and 22, after controlling for school achievement and background factors;
- Post-school qualifications were of little benefit in preventing unemployment, after controlling for the effects of school achievement and year 12 completion;
- Men were generally more likely to become unemployed and were less likely to exit unemployment compared to women when post-school qualifications and labour market experience were taken into account;
- Age had a strong effect, net of other factors, with older young people less likely to become unemployed;
- Background characteristics such as socioeconomic background and ethnicity had moderate effects on becoming unemployed, net of other factors;
- The national unemployment rate for the whole labour force had a positive relationship with youth unemployment in the two older cohorts;
- Influences on the duration of unemployment were school achievement, year 12 completion (only at age 18), having a degree (at age 22), marriage, and especially unemployment experience. The detrimental effect of unemployment experience has increased over time.

Factors Influencing Youth Unemployment in Australia: 1980-1994

INTRODUCTION

Youth unemployment is a major concern for industrialised societies. The rise in general unemployment levels during the early 1970s and subsequent rises occurring at each economic recession[1], together with the structural changes for unskilled and young workers, have exacerbated youth unemployment. Although a variety of factors have been proposed as contributing to youth unemployment, the bottom line is that youth unemployment has increased to unacceptable levels.

In Australia and in other western nations the decreasing employment opportunities for young people have been substantially alleviated by increases in young people's participation in full-time education and training. In Australia, the proportion of students continuing school to year 12 increased dramatically between the mid-1970s and the early 1990s, as did the proportion of young people pursuing post-secondary education. Not only does full-time education decrease the proportion of young people looking for work, it potentially increases the marketability of youth labour. Young people, who in earlier times would have entered the labour market with few formal skills, now enter the labour market later with more skills. In addition, the decline in full-time employment has been to some extent offset by quite dramatic increases in part-time and casual employment (Wooden, 1996). Whether experience in part-time work provides the same benefits to future careers as full-time work experience remains to be seen.

At the individual level unemployment may have serious negative consequences. For those experiencing long and frequent periods of unemployment, their chances of obtaining secure and stable employment (much less careers) are substantially diminished. They become disillusioned with their job prospects and thus either make less effort in their search for jobs or employers judge their time unemployed as indicative of poor skills and abilities. Some may opt out of the labour market altogether. There are a host of social problems associated with unemployment. These include low self-esteem, psychological problems, marriage breakdown, domestic violence, crime and, alarmingly, youth suicide. More generally, sustained unemployment decreases the chances of full participation in civic society.

At the economic level high youth unemployment has detrimental macroeconomic consequences (Flatau, Lewis, & Rushton, 1991). For a start the skills and abilities of a substantial proportion of young people will not be used productively. Where skill shortages appear employers may judge the long and medium term unemployed as unsuitable. Furthermore youth unemployment affects the economy in many ways - reduced spending on goods and services, a decrease in taxation revenue and increased government expenditure on unemployment benefits and other services. In addition there are the hidden socioeconomic costs associated with the undesirable consequences of unemployment. Chapman and Smith (1992) review some of the macroeconomic consequences and note that increases in the proportion of the long-term unemployed have detrimental effects on the filling of vacancies and the rate of wage inflation.

The main purpose of this report is to improve understanding of the factors influencing youth unemployment, using panel data from four cohorts of Australian young people born in years ranging between 1961 and 1975. The data have several advantages over other data sources. Firstly, the cohorts were surveyed over an extensive period, beginning when they were still at school, with annual data collections continuing for some until they had reached occupational maturity and for others they are still continuing. This timeframe allows for more extensive investigations of the frequency and duration of unemployment and of possible ageing and period effects on the influences on unemployment and unemployment duration. Importantly, these extensive data allow the examination of educational and social background factors. Furthermore, the four cohorts allow the identification of period effects (such as the state of the economy) and cohort effects (such as trends in the influences on unemployment).

Specifically, the report addresses the following issues.

1. Literacy and numeracy skills have been argued to influence labour market outcomes such as earnings and are implicated in unemployment among adults. Achievement in literacy and numeracy at school have seldom been used in investigations of unemployment in Australia but these longitudinal data allow the effects of school achievement to be investigated net of background factors.

2. Higher qualifications are associated with lower levels of unemployment but it has not been clearly established whether this arises from the qualifications themselves or because more academically able young people tend to obtain higher qualifications. The analyses in this report inform this debate by investigating the extent to which qualifications contribute to lower levels of unemployment net of school achievement.

3. The role of gender is an important aspect of the labour market. There are suggestions that males are becoming relatively disadvantaged in regard to unemployment. These data allow this claim to be investigated. Since men and women have quite distinct labour market experiences, each analysis of the total sample is accompanied by separate analyses for men and women.

4. Previous studies suggest that age is an important independent influence on unemployment. This study examines the extent to which the effect of age can be attributed to qualifications and labour market experience or to maturity.

5. This study investigates the influence of background characteristics on the likelihood of becoming unemployed, including socioeconomic background, English speaking or non-English speaking background, and capital city or non-capital city residence. Since these analyses include measures of educational qualifications, labour market history, and school achievement, both the total and direct effects of background characteristics on unemployment can be isolated.

6. The analyses include an important macro-economic influence on unemployment, the prevailing overall unemployment rate. The long time-frame of the data, together with recent advances in statistical modelling, allow examination of the extent to which the unemployment rate for the labour force as a whole affects the probability of young people becoming unemployed.

7. Our analyses of unemployment duration for the four cohorts at particular ages enable testing of the 'state dependency' hypothesis, which is that the chances of exiting unemployment decrease with increased duration of unemployment.

8. These analyses include detailed measures of both employment and unemployment experience. Labour market history may have a strong influence on both becoming unemployed and unemployment duration. Most studies of youth unemployment do not include such detailed and accurate measures of labour market history.

The rationale for focusing on these particular issues is outlined in the next section.

FACTORS ASSOCIATED WITH UNEMPLOYMENT - THE LITERATURE

Earlier research has established a number of factors associated with the likelihood of unemployment among Australian youth. The main influences are age, gender, ethnicity, region and education. Specifically, "younger" young people generally have relatively poor employment prospects, as do young males, those living in rural areas, and those from non-English speaking backgrounds. From a policy perspective, low levels of educational qualifications and poor performance in literacy and numeracy are critical factors to examine in relation to youth unemployment.

Younger people tend to have a higher probability of being unemployed. Miller (1987) reports Census data showing sequential declines in the proportion unemployed by five year age cohorts. More recently, Wooden (1996) and Borland (1997) show that unemployment rates decline in successively older youth cohorts. The most readily apparent explanation for the inverse relationship with age is that older young people are more qualified and thus more employable. However, Chapman and Smith (1992) found that the effect of age remained after controlling for education beyond year 12. Similarly, Miller (1987), commenting on analyses that controlled for educational qualifications, noted that unemployment rates amongst 16 year-olds are about two and half times the unemployment rate for 25 year-olds. Older young people may be more efficient in their job search activities or generally more employable because of their greater experience and maturity.

Young men generally show higher levels of unemployment than young women. Statistics for August 1995 showed that 12.4 per cent of men aged 15 to 19 years were unemployed compared to 10.8 per cent of young women (Wooden, 1996). This is the reverse of the figures for 1980 when 12.7 per cent of 15-19 year old males were unemployed compared to 16.6 per cent of females (Miller, 1987). (These results may be in part due to the higher participation rates in full-time education of young women compared to young men). The gap between male and female long-term unemployment for the adult labour force appears to have widened between 1970 and 1982 (Trivedi & Hui, 1987). More recent work also suggests that males are relatively worse off. Athanasou et al. (1995) list 'being male' a risk factor for (adult) unemployment.

Focusing on time elapsed before exiting a spell of unemployed (or unemployment duration) also shows a worsening of the situation for young men relative to young women. Chapman and Smith's (1992) analysis of the Australian Longitudinal Survey (ALS) showed that males had a mean unemployment duration of 37 weeks compared to 25 weeks for females. Harris (1996) found that age had a more favourable influence on

length of time unemployed for women than for men. This contrasts with the work by Hui (1991) who, analysing data collected in 1984, concluded that women's unemployment duration was one and half times that of men's. In addition, Brookes & Volker (1985/86) using similar data concluded that unemployment duration exerts a stronger (negative) influence on subsequent unemployment for females than for males. The tendency for young women to stay at school for longer may explain the detrimental effects of being male on unemployment. However, this is probably not the case. Males tend to be unemployed for longer periods even when educational qualifications are controlled for. Comparisons between the sexes become more difficult in older groups of young people. Young women with young children are unlikely to be looking for full-time work. In addition, young women disillusioned with their job prospects are possibly more likely to opt out of the labour market and assume household responsibilities if they are in a position to do so.

Unemployment rates for ethnic groups are generally higher than average. Borland's (1997) figures show the unemployment rate for those born overseas was 9.7 per cent compared to 8.3 per cent for the Australian born. Unemployment levels are inversely related to the time elapsed since arrival in Australia. It is not surprising that among adults, those from a non-English speaking background show higher rates of unemployment due to lower levels of qualifications, language problems, and possibly discrimination. For young adults ethnic differences should be less pronounced since language is rarely a problem and they tend to have been educated in Australia. Empirical research shows little or no difference in unemployment experiences between those from non-English and English speaking backgrounds, net of other attributes among Australian young people. Chapman and Smith (1992) report no differences in the probability of leaving unemployment between Australian born youths and those born in non-English speaking countries. Distinguishing between Australian, Asian and other birthplaces, Hui (1991) found no significant differences in unemployment duration.

There is substantial evidence that education is important in reducing the likelihood of unemployment. Athanasou et al. (1995) list both having a low level of education and lacking post-school qualifications as risk factors for long-term unemployment. Recent estimates put the unemployment rate for adult men at 6 per cent for those with a degree, 8 per cent for those with diplomas or vocational qualifications, increasing to over 16 per cent for those who had not completed high school (Borland, 1997). Focusing on duration of a spell of unemployment among young Australians, Chapman and Smith (1992) found that, on average, those who had completed year 12 or beyond experienced 6 weeks less time unemployed than those who had not completed secondary school. University graduates typically show lower levels of unemployment which may reflect the positive attributes employers judge graduates to have, and relatively buoyant demand in the sectors of the labour market that graduates typically enter. Miller (1987) noted that more years of schooling reduce the chances of unemployment particularly *at lower levels*. Harris (1996) found that, among his more highly educated sample, having a degree or a diploma had a substantial influence on employment versus unemployment for young men but not for young women. Among the low education group, completing year 11 had an impact larger in size compared to the effects of year 12, degree or diploma completion among the higher educated group.

There is a city-rural divide in unemployment. Chapman and Smith (1992) estimated that rural young people were unemployed for an average of 56 weeks compared to 24 weeks for city residents. Earlier work by Eyland (1986) and Miller (1987) also found that geographic location influenced unemployment. These results reflect the greater job opportunities in large cities and the continuing decline in employment in many rural areas.

Recently, literacy and numeracy have been cited as important factors relevant to youth unemployment. The 1997 House of Representatives report on youth unemployment devotes several pages to increasing the levels of literacy and numeracy as a means of improving the employment prospects for Australian youth (House of Representatives Standing Committee on Employment, Education and Training, 1997). An ACER study found that higher achievements in literacy and numeracy at age 14 have substantial positive effects on employment for 19 year-olds (Lamb, 1997). Analysing the data from the 1996 *National Study of Adult Literacy*, Miller and Chiswick (1996) conclude that 'literacy and numeracy skills are inexorably linked to labour market outcomes'. Labour market participation rates decline substantially from the highest literacy skill level group (around 90 per cent) to the lowest literacy skill group (around 61 per cent). The decline is steeper for women than men. There is also a strong relationship between literacy skill and unemployment. For the highest literacy skill level, unemployment rates were around 3 per cent, rising to 20 per cent for the lowest literacy skill group. In this case there were no clear gender differences. These differences in unemployment incidence appear larger than those for educational qualifications (cf Borland, 1997).

Macroeconomic factors clearly influence the unemployment experiences of individuals. The national unemployment rate is related to both the chances of becoming unemployed and of leaving unemployment. Interestingly, economic downturns effect a rapid rise in unemployment but the decline in unemployment is much slower during economic recoveries. Using data for the period 1970-1980, Trivedi and Hui (1987) found significant effects of the lagged unemployment rate on the proportion experiencing long-term unemployment. Although the finding that the unemployment rate for the labour force as a whole influences youth unemployment may appear obvious, the strength of this relationship varies among OECD countries (OECD, 1996) and has yet to be fully documented in Australia.

FACTORS ASSOCIATED WITH UNEMPLOYMENT - BIVARIATE ANALYSES

This section discusses the results obtained from bivariate analyses of unemployment incidence. They show the overall relationships between unemployment and age, a range of demographic and social background factors, educational qualifications and school achievement. Unemployment incidence is defined as looking for work for 3 months or longer in a given year. Further details on the data and measures used are presented in Appendix 1.

Table 1 presents the percentage of respondents looking for work by age for the four cohorts. These results show a strong negative relationship between unemployment incidence and age, especially among the two older cohorts for which long-term data are available. As the respondents grew older the proportion looking for work declined. This result is in accordance with earlier studies reviewed in the literature that show a negative effect for age, or report that the proportion unemployed below the age of 20 is higher than that for the 20 to 24 year age group. These data suggest that the inverse relationship with age is weaker among the younger cohorts. However, these cohorts have been surveyed for a more limited number of years.

One possibility for the relationship between unemployment and age in these particular data is differential sample attrition whereby the long-term unemployed are less likely to respond to the survey. Although one cannot completely discount this explanation, subsequent multivariate analyses suggest that this is not the case since a strong negative effect for age is found after controlling for school achievement which is linked to the probability of dropping out of the study. Furthermore, there is other evidence that selectivity bias in these longitudinal samples is not serious and will not lead to erroneous interpretations.[2] A second possibility is that respondents who said they were looking for work in the earlier years became disillusioned with their job prospects and pursued home duties or study rather than continue to look for work. However, the relationship between unemployment and subsequent study or home duties is not strong.

The other noteworthy feature of Table 1 is that at most ages unemployment rates for the 1961 cohort are lower than for the three later cohorts. This result reflects the declining opportunities for youth employment over time. The main exception occurs at age 22, when the percentage unemployed was 9.2 per cent for the 1961 cohort during the 1982-1983 recession. The 1965 cohort reached this age during more buoyant economic times in 1987. Similarly, the effects of the 1991-1993 recession are evident for the 1970 cohort which showed 9.4 per cent unemployed. The effects of the macroeconomic environment on youth unemployment are clearly evident from these survey data.

Table 1 Percentage of Cohort who are Unemployed, by Age

Age	1961 Cohort	1965 Cohort	1970 Cohort	1975 Cohort
17	9.6	12.7	7.6	11.0
18	11.1	14.1	8.5	12.4
19	8.5	9.3	6.5	10.2
20	4.1	6.9	6.0	7.3
21	5.3	4.9	9.4	
22	9.2	5.3	9.4	
23	5.0	5.3	7.0	
24	-	3.2	6.1	
25	2.9	3.3		
26	3.0	5.0		
27	-	5.4		
28	-	3.9		
29	2.7	3.2		
30	3.2			
31	3.0			
32	2.2			
33	2.5			

Note: Unemployment Incidence is defined as the proportion of respondents looking for work for 3 months or more in each year (see Appendix 1).

Table 2 shows the relationship between the incidence of unemployment (unemployed for 3 months or more) and background characteristics. There is little difference in unemployment incidence between males and females. Respondents from non-English speaking backgrounds show a higher incidence of unemployment, as do young people from non-metropolitan areas. Occupational background as measured by parents' occupational status relates to unemployment incidence. For the 1961 cohort, respondents from professional and managerial backgrounds showed an unemployment incidence of 4.4 per cent compared to 7.1 per cent for those from unskilled manual backgrounds. For the 1965 cohort the unemployment incidence of respondents from unskilled manual backgrounds is twice that of those from professional and managerial backgrounds. This ratio is about 1.9 for the 1970 cohort and 1.7 for the 1975 cohort. It should be noted that these results are based on the data for each year combined. We expect that the effects of occupational background are stronger than the figures reported here for younger ages and weaker in the older age groups. The weaker effect for the 1961 cohort compared to the 1965 and 1970 cohorts may therefore be due to the longer time period this cohort has been surveyed.

Table 2 Unemployment Incidence by Social Characteristics

	Cohort Birth Year			
	1961	1965	1970	1975
All	[illegible]	6.9	7.7	9.2
Males	5.4	7.0	7.9	9.0
Females	5.4	6.8	7.5	9.3
English Speaking Home	5.3	6.8	7.6	9.1
Non-English Speaking Home	6.0	7.7	9.2	10.0
Major Metropolitan	5.2	5.9	7.1	9.2
Non-Metropolitan	5.7	6.7	8.5	9.2
Occupational Background (Parents)				
Professional/Managerial	4.4	4.7	5.6	7.0
Clerical, Sales	5.0	7.3	8.2	9.4
Trade	5.3	6.7	7.3	9.7
Unskilled/Semiskilled Manual	7.1	9.5	10.5	11.7

Note: Unemployment Incidence is defined as the proportion of respondents looking for work for 3 months or more for each year averaged for the period surveyed.

Table 3 presents the unemployment rates by educational qualifications and achievement in literacy (reading comprehension) and numeracy. For all cohorts, the proportion unemployed is smaller among those who had completed year 12 than for the entire samples. These differences are substantially smaller in the 1961 cohort. In the two older cohorts, apprenticeships, university degrees and diplomas also reduce the levels of unemployment but a TAFE certificate is not associated with lower unemployment. TAFE diplomas, however, do appear to reduce the probability of being unemployed among the 1965 and 1970 cohorts.

School achievement has a strong relationship with unemployment incidence. Respondents with achievement levels more than one standard deviation above the mean showed unemployment rates of 3.2 and 3.9 per cent for the 1961 and 1965 cohorts respectively. This compares with 9.1 and 11.5 per cent for respondents whose achievement level was more than one standard deviation below the mean. For the later two cohorts the difference increases to about 9 percentage points.

Additional analysis of the reading and numeracy scores showed that numeracy achievement had a slightly stronger correlation with unemployment than achievement in reading comprehension. However, since the correlation between test scores is quite high (around 0.6), these two measures were combined in these and subsequent analyses.

Table 3 Unemployment Incidence by Qualification and Achievement

	Cohort Birth Year			
	1961	**1965**	**1970**	**1975**
All	5.4	6.9	7.7	9.2
Qualifications				
Year 12 Completion	4.3	4.8	5.7	7.5
University Degree	2.4	3.3	8.6	-
Apprenticeship	4.0	3.1	7.0	-
Diploma at University/CAE	2.2	2.4	4.6	-
Diploma at TAFE	5.1	6.2	5.6	-
Certificate at University/CAE	1.2	5.0	12.8	-
Certificate at TAFE	4.8	6.6	10.0	-
School Achievement				
More than 1 SD below mean	9.1	11.5	13.4	15.4
Mean to 1 SD below mean	7.1	8.8	9.6	10.0
Mean to 1 SD above mean	4.7	6.1	6.7	8.2
More than 1 SD above mean	3.2	3.9	4.4	6.2

Note: SD = Standard Deviation, 16 % of the samples are more than one SD below the mean, 34 % are between the mean and one SD below the mean, 34 % are between the mean and one SD above the mean and 16 % are more than one SD above the mean. Unemployment Incidence is defined as the proportion of respondents looking for work for 3 months or more in a given year averaged for the entire period that cohort was surveyed.

FACTORS ASSOCIATED WITH UNEMPLOYMENT- MULTIVARIATE ANALYSES

This section reports the results of multivariate analyses on whether or not a person spent three or more months unemployed in a particular year. The analysis comprises four groups of variables: social background and demographic variables; school variables (school sector and achievement in literacy and numeracy); qualifications (including year 12 completion); and finally labour market experience. These analyses were performed on the pooled data for each study with an identifier for the year the data was collected using a repeated measures design. The effects were estimated by logistic regression. More detail on this procedure is presented in Appendix 1. These analyses are limited to the three oldest cohorts since the cohort born in 1975 has not yet spent sufficient time in the labour market for the effects of qualifications and employment experience to stabilise.

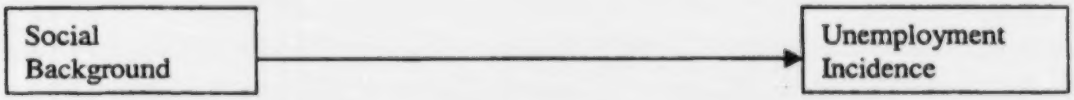
Four models were analysed in order to estimate the total and direct effects of factors influencing unemployment incidence. These groups of factors form a temporal sequence with social background most removed in time from the measurement of unemployment incidence followed by school factors, qualifications, and with prior employment experience being the most proximate influence on unemployment incidence.

The first model (Model 1) specifies social background factors as influences on unemployment. In these analyses we isolate the total effects of age, gender, parental occupational status, residence and ethnicity on being unemployed for three months or more in a given year. Model 2 adds school factors, specifically school sector and achievement in literacy and numeracy. The results from this model show the total effects of school factors on unemployment incidence. In addition, the effects for the social background factors are the direct effects net of school factors. Model 3 adds educational qualifications. The total effects for educational qualifications are estimated as well as the direct effects of social background, net of school factors and qualifications, and the direct effects of school factors net of qualifications. The final model (Model 4) adds employment experience. This model produces the direct effects of qualifications, school and social background factors net of employment experience. The four models are presented diagrammatically in Figure 1.

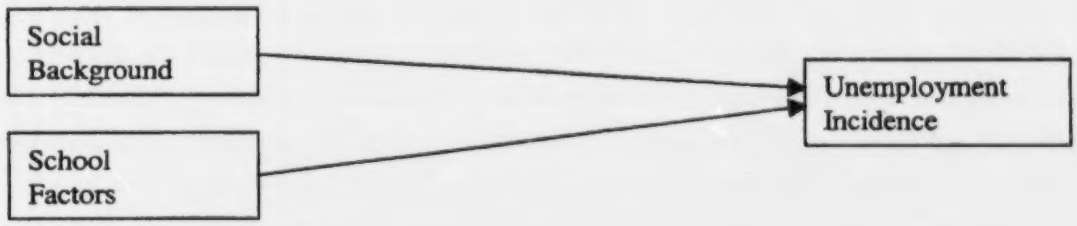
These total and direct effects are of interest because they show the overall (total) effects of factors such as socioeconomic background, non-English speaking background, attendance at a Catholic or independent school and school achievement as well as their direct effects net of more proximate influences.

The findings discussed here focus on the results obtained from an analysis of Model 3. The reason for concentrating on Model 3 is that this model shows the direct effects for social background, school and educational factors without these effects being subsumed by employment experience. Employment experience has a very strong influence on subsequent unemployment and much of the effect of other factors is indirect through employment experience.

Model 1



Model 2



Model 3

Model 4

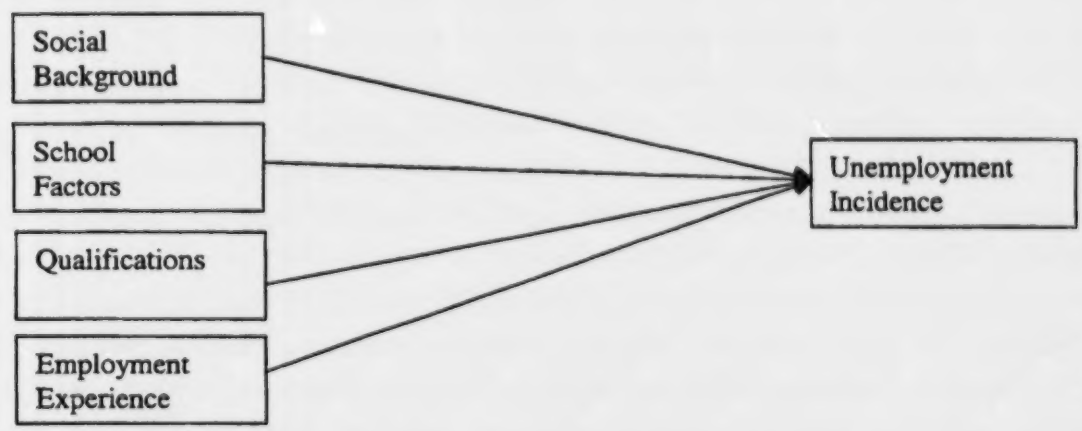


Figure 1 Models of Unemployment Incidence Showing the Groups of Factors Analysed.

Appendix 2 also includes the results from the other three models. The total effects for social background (Model 1) are presented in Table A1; for social background together with school factors including achievement (Model 2) in Table A2, these two groups of factors and qualifications in Table A3 (Model 3); and in Table A4 these three groups of factors with the addition of experience of full-time employment (Model 4).

Social Background, Demographic and Contextual Variables

The charts and graphs in Figures 2 to 5 present the results of factors influencing the relative odds of being unemployed for 3 months or more in a given year. The odds ratios are readily interpretable. For example, an odds ratio of 2.0 for a particular factor indicates that respondents with that characteristic are twice as likely to be unemployed (rather than not unemployed) compared to respondents without that characteristic. Odds ratios above one indicate an increased likelihood of unemployment and ratios below one indicate a decreased likelihood. Odds ratios are always positive. The greater an odds ratio is from one the stronger the effect. An odds ratio equal to one means no effect or that the effect failed to reach statistical significance.

Figures 2 and 4 are bar charts showing the odds ratios for categorical variables and for specified differences on continuous variables. In these bar charts the effects on the odds of unemployment for categorical variables are directly comparable. However, for continuous variables (occupational status, school achievement, age and employment experience) the odds ratios are not strictly comparable with the effects for categorical variables. Therefore, we include plots of the effects of the continuous variables in Figures 3 and 5 for the appropriate range of values for each influence. Differences in the slopes of these plots indicate the relative strength of the continuous variables. [3]

The odds ratios presented in the figures are, with one exception, derived from the estimates obtained from Model 3 (presented in Table A3). These effects are net effects or direct effects, that is the influence of a particular factor on unemployment, after allowing for the influence of the other factors in Model 3. The exception is parental occupation status in Figure 3, which shows the total rather than direct effects. This is because there is more interest in the total effects of socioeconomic status rather than its direct effects net of school factors and qualifications.

The odds ratios in the Figures are based on the results for all respondents; the results from the separate analyses of males and females are presented in Appendix 2. Gender differences in the effects of particular factors are discussed in the text where they are important.

Age

Age has a large and significant negative influence on unemployment incidence for the two oldest cohorts. For each year increase in age the odds of being unemployed are between 0.8 and 0.9 times lower. Figure 2 shows this effect for an age difference of a single year. Over a number of years this effect of age is large, as illustrated in Figure 3. For example, respondents five years older are on average 1.6 times less likely to be employed for 3 months or more. Note that this effect of age is independent of the prevailing overall unemployment rate and, importantly, independent of qualifications and

work experience. The effect of age is much weaker in the 1970 cohort although a significant negative effect was found for women (Table A3).

Gender

In the 1961 cohort men are more likely to become unemployed than women. They were about 1.5 times more likely to be unemployed for 3 months or longer, net of differences in schooling and qualifications. In the 1965 and the 1970 cohorts the gender differences were not significant when not controlling for work experience (Figure 2, Table A3). When controlling for employment experience, being male had a detrimental effect on unemployment, increasing the odds of unemployment for 3 months or more by 1.6 times in the 1965 cohort and 1.3 times in the 1970 cohort (Table A4). This result may in part be explained by women indicating that they are involved in home duties rather than looking for work, but it should be noted that in these data these two activities are not mutually exclusive.

Socioeconomic Background

Socioeconomic background (as measured by parental occupational status) influenced the incidence of unemployment. The total effects were moderate. They are weaker than the effects of school achievement and age (Figure 3). A 20 unit increase (approximately one standard deviation) in parental occupational status score (which ranges from 1-100) decreased the odds of being unemployed by 0.83 times in the 1961 cohort, by 0.76 times for the 1965 cohort and by 0.79 times in the 1970 cohort (Table A1).

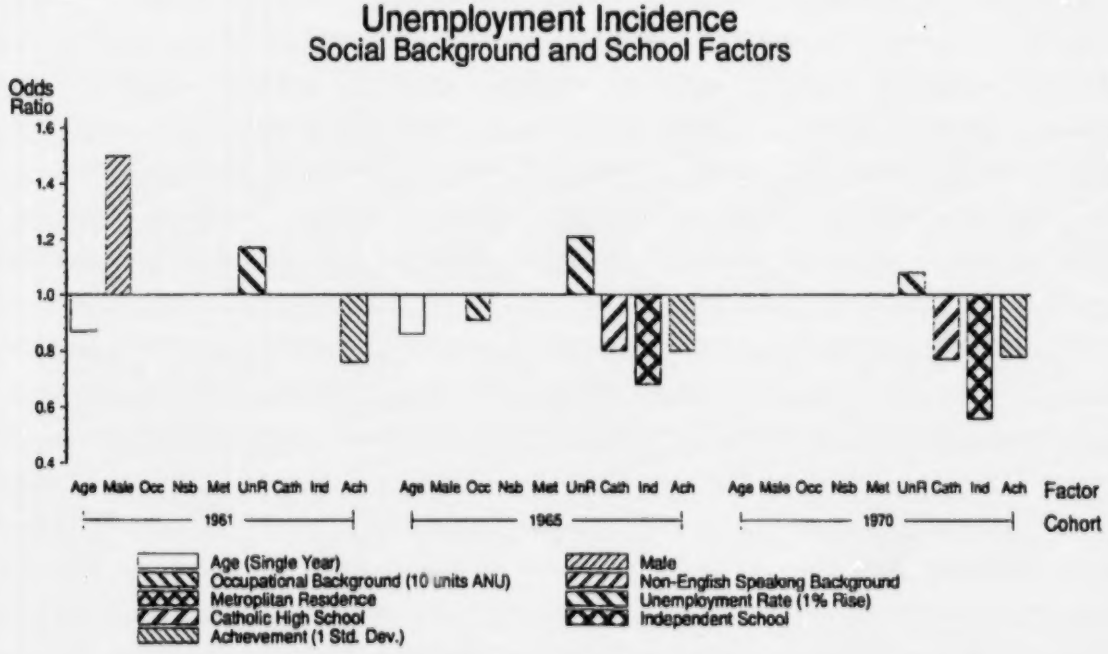


Figure 2 Effects of Social Background and School Factors on Unemployment Incidence

The effect of parental occupation was weaker when school factors, qualifications and employment experience were included in the analyses. The effects tended to be small and in several instances was not statistically significant (P>0.05). The effect of parental occupation in the fully specified model (in Table A4) is illustrative of its effects. Comparing respondents differing by one standard deviation in occupational status scores results in a reduction of the odds of unemployment by 0.91 times in the 1961 cohort, 0.84 times in the 1965 cohort and 0.87 times in the 1970 cohort. Although these effects are moderate, they are net of other factors included in the model. Therefore it can be concluded that socioeconomic background status affects unemployment incidence net of school achievement and other school factors, qualifications and employment experience.

Gender differences in the effect of parental occupation may indicate a trend. The effect was larger for men in the 1961 cohort, similar in the 1965 cohort but larger for women in the 1970 cohort. These results suggest that parental occupation may be becoming less important for males but relatively more important for women.

Area of Residence

There are indications that living in a major metropolitan area decreased the chances of becoming unemployed but the effects are small and not statistically significant (Table A3). Therefore, the differences found in the bivariate analyses should be attributed to differences in qualifications or other factors.

Ethnic Background

Men from non-English speaking backgrounds in the two youngest cohorts were significantly more likely to experience unemployment for 3 or months in a given year. They were between 1.6 and 1.8 times more likely to become unemployed net of differences in achievement, qualifications and work experience (Table A4). There was no effect for women from non-English speaking backgrounds so there was no significant effect for all persons of non-English speaking backgrounds (Figure 2). The sample sizes of these data are too small to produce estimates for particular ethnic groups.

Overall Unemployment Rate

Not surprisingly, the overall national unemployment rate influenced the odds of being unemployed. In the two older cohorts, a 1 per cent rise in the national unemployment rate increased the odds of being unemployed by about 1.2. For the 1970 cohort a 1 per cent rise increased the odds by about 1.1 times. This effect is larger for men than women in the 1961 cohort but equivalent in the 1965 and 1970 cohorts. Given that national unemployment rates varied by over 5 percentage points during the time period studied, these effects are considerable, as illustrated in Figure 3.

School Variables

The group of effects we discuss in this section are school variables: school sector (at secondary level) and school achievement.

School Sector

Attendance at a Catholic school, compared to a government school, tended to reduce the chances of being unemployed. However, the effects were not significant in the oldest cohort (born in 1961). In the two younger cohorts, attendance at a Catholic school relative to a government school decreased the odds of unemployment by about 0.8 times. Attendance at an independent school also reduced the odds of unemployment for the two youngest cohorts: the result for the 1961 cohort was not significant. Its effects in the 1965 and 1970 cohorts were larger than for attendance at a Catholic school (Figure 2). There are indications that attendance at a non-government school is increasingly beneficial since the effects in the 1970 cohort are greater than those for the 1965 cohort (Figure 2). However, less time has elapsed since attending school for the younger cohort. There are no significant differences in the effects of school attendance between men and women (Tables A2-A4).

Achievement

School achievement in reading and numeracy impacts on unemployment incidence. Its total effects are substantial: a one standard deviation increase in achievement score decreases the odds of unemployment by 0.71 times in the 1961 cohort, 0.76 times in the 1965 cohort and by 0.73 times in the 1970 cohort (Table A2).

It is logical to assume that the effect of achievement is indirect, that is, achievement affects school completion and qualifications which in turn affect unemployment incidence. However, substantial effects of achievement remain after controlling for qualifications. The direct effects of achievement are larger than the total effects for parental occupational status (Figure 3). An increment of one standard deviation in achievement score decreases the odds of unemployment by 0.75 times in the 1961 cohort, 0.80 times in the 1965 cohort and by 0.78 times in the 1970 cohort, net of year 12 completion and other qualifications (Table A3). These effects are greater if larger differences in achievement are being compared: a difference of two standard deviations in achievement translates to decreases in the odds of unemployment by 0.57, 0.64 and 0.61 times, respectively, in the 1961, 1965 and 1970 cohorts. This is an important result because it means that school achievement affects unemployment net of educational qualifications. Another way of understanding this result is that among educational groups achievement has a substantial effect on unemployment. Controlling for employment experience further reduces the effect of achievement although its effects for the 1961 and 1970 cohorts remained substantial and significant. This result shows that achievement also has an indirect effect, influencing employment history, which in turn impacts on unemployment incidence.

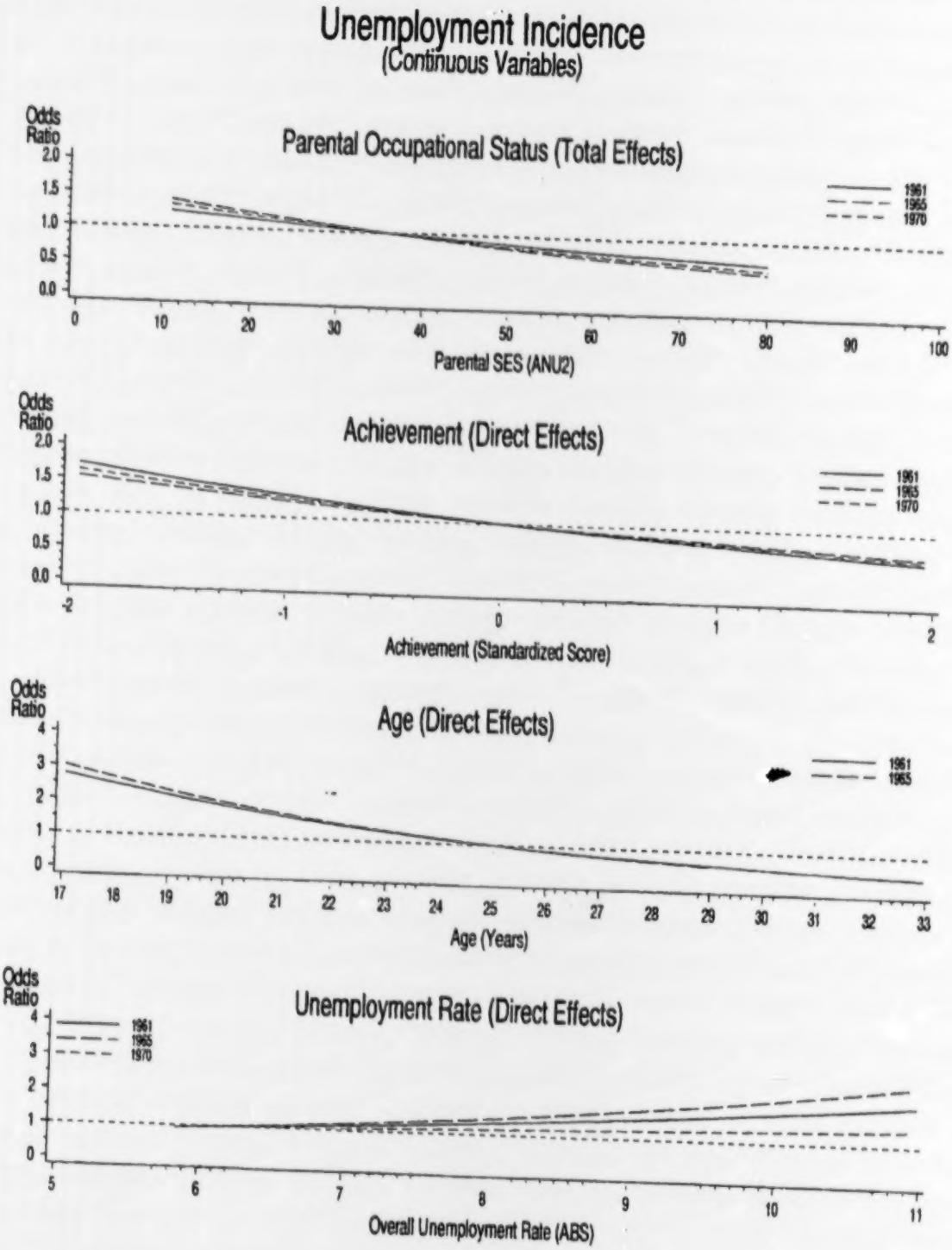


Figure 3 Odds on Becoming Unemployed for Occupational Background, Achievement, Age and the Unemployment Rate.

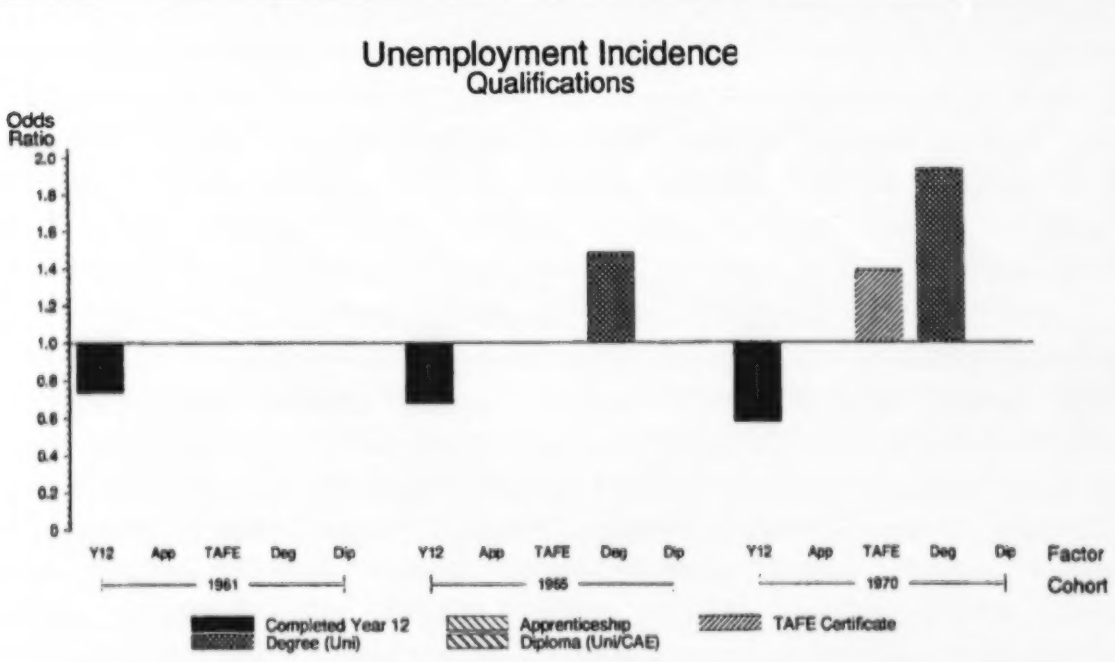


Figure 4 Effects of Educational Qualifications on Unemployment Incidence

Qualifications

Educational qualifications, including year 12 completion, is the third group of variables in the model. The results are presented in Figure 4 and Tables A3 and A4.

Year 12 Completion

Completion of year 12 had a large effect on the incidence of unemployment. For respondents born in 1961 who completed year 12 the odds of unemployment was 0.75 times that of not completing year 12. For the 1965 cohort and the 1970 cohorts the effects of year 12 completion are even stronger, reducing the odds by 0.68 and 0.58 times, respectively (Figure 4, Table A3). These effects are net of the effects of other qualifications and school achievement. The finding that the beneficial effect of year 12 completion appears to be increasing is despite substantial increases in the proportion of these cohorts that complete year 12.

It should be noted that the effects of school completion are much stronger in analyses that include employment experience (Table A4). This is due to the moderate to high correlation between non-completion of year 12 and employment experience.

Degree

Surprisingly, completion of a degree did not substantially decrease the chances of unemployment when controlling for achievement and other factors. In fact, its effect among the two younger cohorts was to increase the odds of being unemployed (Figure 4, Tables A3 and A4). It should be kept in mind that this analysis controls for year 12 completion which has powerful effects on reducing the chances of unemployment so that those with degrees experience lower incidences of unemployment than those without

degrees. However, this result suggests that having a degree does not provide additional protection against unemployment beyond that due to year 12 completion. This contrasts with the substantial benefits that having a degree has on hourly earnings (see LSAY Research Report No. 8) over and above the effects of year 12 completion.

Apprenticeships

Having an apprenticeship did not generally decrease the chances of unemployment since its effects, although in the expected direction, were with one exception not statistically significant at the 5 per cent level (Figure 4, Table A3). Only for men born in 1961 did an apprenticeship significantly reduce the odds of unemployment. When controlling for employment experience, there was no instance of an apprenticeship decreasing the chances of unemployment.[4] In contrast, an apprenticeship *increased* the probability of unemployment for women in the 1961 cohort and for men (and overall) in the 1970 cohort (Table A4). These results indicate that in comparisons of persons with equal time in full-time employment, having an apprenticeship does not reduce the chances of unemployment and in the youngest cohort the chances actually increase.

TAFE Certificate

A TAFE certificate did not decrease the odds of unemployment without controls for work experience (Figure 4). In fact these analyses indicate that a TAFE certificate increased the chances of unemployment for some groups: men born in 1961, women born in 1965 and 1970 (Table A3). When controls for work experience were included, a TAFE certificate significantly increased the odds of unemployment in most instances (Table A4).

Other Qualifications

There was no advantage regarding unemployment for approximately 8 per cent of respondents who had an 'other' qualification obtained at a private institution. For women born in 1970 an 'other' qualification actually increases the incidence of unemployment when controlling for employment experience (Table A4).

Post-graduate diplomas, doctorates, and certificates obtained at a CAE or University, do not appear to affect unemployment incidence (Tables A3 and A4). It is possible that effects arise later during the occupational career and most respondents with these qualifications hold other qualifications. The small numbers of cases in these groups undermine our ability to draw definitive conclusions as to the effects of these qualifications.

Labour Market Experience

The effect of the amount of prior full-time employment on the incidence of unemployment is large. Its effect is the largest of all the factors examined. Figure 5 displays the effect of employment experience. Low percentages of prior full time employment substantially increase the odds of becoming unemployed. For the 1961 cohort, a 10 per cent increase in time employed reduces the odds of unemployment by 1.3 times. The decrease in odds for a 30 per cent increase is around 2.2 times. The effects of full time work experience are even greater for the 1965 and 1970 cohorts (Figure 5).

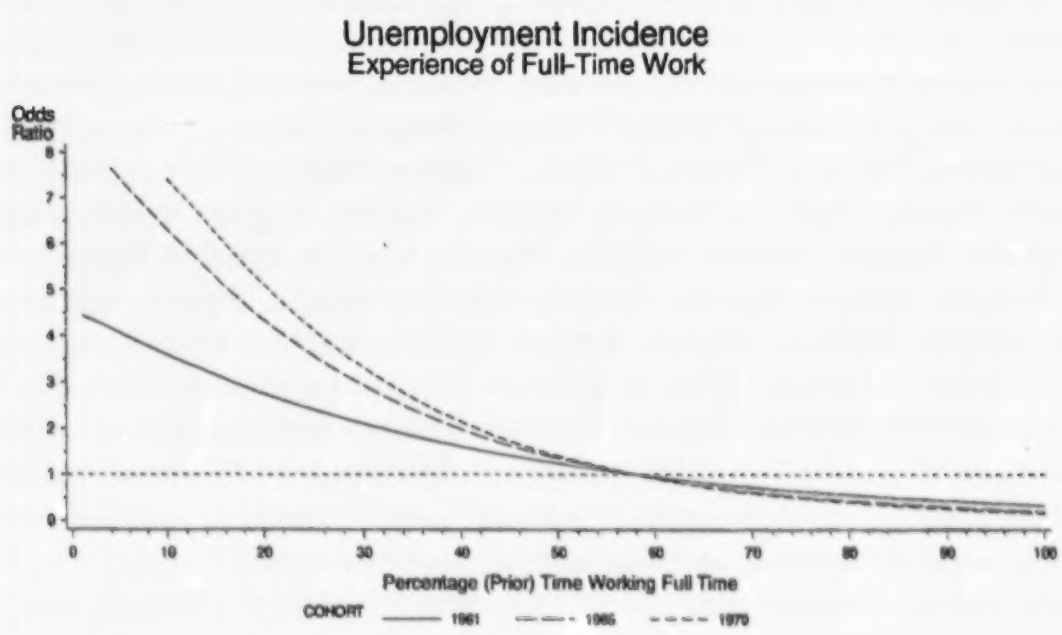


Figure 5 Effects of Employment Experience on Unemployment

Experience in the labour market had a larger effect on the incidence of unemployment for men than for women (Table A4). This result was consistent across the three cohorts.

The addition of the employment experience measure heightened the advantage of completing year 12 (compare Table A4 with Table A3). In a sense this compensates for time at school and in post-secondary education and training. Allowance for employment experience accentuated the effect for gender with men having a substantially greater chance of being unemployed. This means that comparing men and women with equal employment experience, men have an increased likelihood of unemployment.

Interaction Effects

A variety of interaction tests (not presented) were performed to examine whether the effects of an influence on unemployment change with age.

A statistically significant interaction between age and gender was found. Gender differences increased with age. This is not unexpected as women are more likely to move out of the labour force, so no longer classified as being unemployed. The estimates were similar in all cohorts, increasing the odds of unemployment for males (relative to females) by about 1.1 times each year. For a single year this effect is small, but over five years the cumulative effects are substantial.

There was no significant interaction between age and year 12 completion for women in the 1961 cohort, but for men the effect of year 12 completion declined with age. However, in the 1965 cohort both sexes experienced a decline in the effect of year 12 completion, whereas for the 1970 cohort there was no significant interaction between age and year 12 completion on unemployment. Again these results are not unexpected, the

beneficial effect of year 12 completion should wane with time and in the case of the 1970 cohort a much shorter time has elapsed since year 12 completion.

For the most part there were no significant interactions between age and occupational background, having a degree or school achievement. When a significant interaction with age was identified (for example, the effect of parental occupational status on unemployment in the 1965 cohort) it was generally a decline with age.

UNEMPLOYMENT DURATION (EXITING FROM UNEMPLOYMENT)

The third group of analyses examines the influences on the duration of unemployment. Data from a monthly calendar of activities was used to establish the number of unemployment spells and focusing on the first spell, the factors that change the probability of leaving unemployment. These analyses follow from previous analyses of the *Australian Longitudinal Survey* (Chapman & Smith, 1992).

We analysed exiting unemployment of unemployed respondents at comparable ages across cohorts, at 18 years for all cohorts, at 22 for the oldest three cohorts, at 26 for the 1961 and 1965 cohorts, and at 30 for the oldest cohort.

The first part of these analyses looks at state dependency, that is, the hypothesis that increased duration of unemployment decreases the chances of leaving unemployment. This hypothesis is limited to a single spell of unemployment. The second part investigates the effects of school achievement, qualification, unemployment experience and other factors on the length of time unemployed.

State Dependency

Table 4 presents the analysis of state dependency. To reiterate, state dependency hypothesises that the longer a person is unemployed the less likely he or she is to leave unemployment. The first entry in the table is the mean time unemployed in months. The second entry is the scale parameter, which tests the state dependency hypothesis. A scale parameter of 1 indicates that there is no effect of duration on exiting unemployment. If the scale parameter is between 0.5 and 1, the probability of exiting unemployment is increasing at a decreasing rate. If the scale parameter is above 1 the probability of exiting from unemployment declines as duration increases (Allison, 1995:19-21,68). If the scale parameters are substantially and consistently above 1, then the state dependency hypothesis is confirmed.

Our analyses show that there is no evidence of state dependency among these cohorts of young people. As Table 4 shows the scale parameter is either below one or very slightly above.[5] If anything, these results suggest that the longer the time spent unemployed the greater the chances of leaving unemployment since many of the scale parameters are below one. This result confirms the previous work of Chapman and Smith (1992) and Hui (1991). One explanation for this result is that the long-term unemployed drop out of the study. However, in each analysis there are substantial numbers who have been unemployed for six months or more. It is possible but highly unlikely that of the long-term unemployed, the state dependent group dropped out and the non-state dependent did not.

Table 4 Unemployment Duration - Mean Time and State Dependency

	Cohort Birth Year			
	1961	**1965**	**1970**	**1975**
At Age 18				
Mean Time Unemployed (Months)	3.2	4.2	3.5	4.0
Scale Parameter	0.94	1.01	0.98	0.96
At Age 22				
Mean Time Unemployed (Months)	4.0	3.8	4.5	
Scale Parameter	0.91	1.02	1.00	
At Age 26				
Mean Time Unemployed (Months)	3.7	5.3		
Scale Parameter	0.92	1.03		
At Age 30				
Mean Time Unemployed (Months)	4.0			
Scale Parameter	0.92			

Note: Analysis limited to unemployed persons in the first spell of unemployment at each particular age. Unemployment duration is defined as the number of months a respondent indicated he or she was looking for work for that spell of unemployment.

Another explanation is that the 'state dependent' group dropped out of the labour market, thereby no longer indicating they were looking for work. However, in the second part of these analysis controls for marriage and gender were included, factors that relate to labour force participation, but the scale parameter remained below one.

The effects of duration on exiting unemployment are not strong. For a scale parameter of 0.90, a 1 per cent increase in the time unemployed translates to 0.1 per cent increase in the probability of exiting unemployment (see Allison, 1995:70). For scale parameters closer to one the duration effect is smaller and if equal to one there is no effect of the length of time unemployed on the chances of exiting unemployment.

Influences on Unemployment Duration

This section examines the relationship between time unemployed and school achievement, gender, year 12 completion and other qualifications, marriage and well-being. Marriage was included for two reasons. Married women may opt to exit unemployment by undertaking home duties. In addition, married persons may be more efficient in their job search activities for financial and family reasons. Previous analyses of these data show that personal well-being has a positive association with exiting unemployment so this measure was also included.

The results presented in Figures 6 to 11 are multiplicative effects. That is they show the increase or decrease in the length of time spent unemployed due to each characteristic (relative to those without that characteristic) net of the effects of other factors in the analysis. An effect greater than one increases the length of time unemployed other factors equal, while an effect less than one reduces the time unemployed. Effects close to one are

weaker than effects substantially greater or smaller than 1. Effects equal to 1 mean they there is no effect. Figures 6 to 9 show the effects for categorical variables and for specified differences on continuous variables. Figures 10 and 11 show the effects of two important continuous variables, school achievement and unemployment experience.[6]

Tables A5 and A6 in Appendix 2 present the corresponding logistic estimates. Appendix 1 explains how multiplicative effects are derived from the estimates and the scale parameters.

At Age 18

Figure 6 shows the multiplicative effects of exiting unemployment when the unemployment spell began the year respondents turned 18. A strong influence is completion of year 12. The ratio of time unemployed for year 12 completers to non-completers is 0.66 for the 1961 cohort, 0.61 for the 1965 cohort, 0.65 for the 1970 cohort and 0.68 for the 1975 cohort. Therefore, there is no indication that the effect of year 12 completion on unemployment duration is changing despite the substantial increase over time in the proportion of young people completing year 12. Calculation of the predicted mean unemployment duration shows the considerable effect of year 12 completion (Table A5). Year 12 completion has stronger effects on reducing time unemployed among women than men for all but the 1975 cohorts.

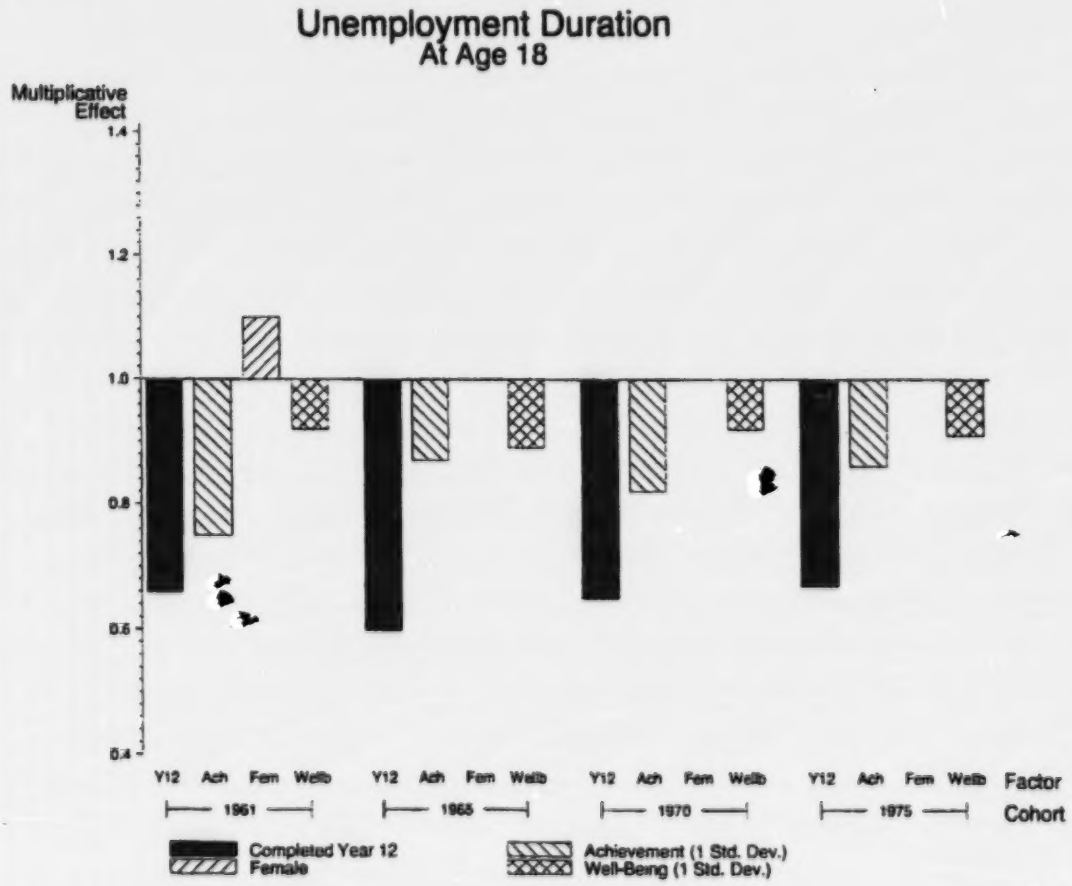


Figure 6 Effects on Unemployment Duration at Age 18

The other important influence on unemployment duration at age 18 is school achievement as measured by literacy and numeracy. Male respondents born in 1961 who had not completed year 12 and with mean scores on achievement and well-being had an expected unemployment duration of 4.6 months. In contrast, respondents similar in every way, except for an achievement score one standard deviation above the mean, had an expected unemployment duration of about 3.3 months. Scoring two standard deviations above the mean further shortened the length of unemployment to about 2.9 months.[7] Unemployment duration for respondents two standard deviations below the mean in achievement is three times longer than for respondents two standard deviations above the mean. School achievement in literacy and numeracy clearly has a substantial effect on unemployment duration.

At age 18 the effects of school achievement are strongest for the oldest cohort (Figure 10). The other cohorts show weaker effects for achievement. For the 1961 cohort the multiplicative effect of achievement is 0.76, compared to 0.86 for the 1975 cohort. For the 1975 cohort, a two standard deviation difference in achievement translates to a decrease in the time spent unemployed by 0.75 times, compared to 0.58 times for the 1961 cohort.

Generally, there is little difference in unemployment duration between males and females at age 18. The effects were small and most often not significant.

Respondents reporting higher levels of well-being had shorter spells of unemployment. A significant effect was identified for each cohort at age 18. This effect was not as strong as for achievement. A one standard deviation in well-being score for the 1961 cohort reduced the unemployment duration by 0.93 times. For the other cohorts the magnitude of the effect was similar. Its influence is not surprising given that persons with higher levels of well-being are likely to be more efficient in their job search activities and/or employers are likely to respond to them more favourably.

At Age 22

Figure 7 presents the results for influences on unemployment duration at age 22. (The multiplicative effects are based on the estimates presented in Table A5). These analyses include the same measures used for the analyses at age 18 but in addition include qualifications completed by age 21, marriage and per cent time spent unemployed.

Year 12 completion has a substantially weaker effect at age 22 than at age 18 (compare Figures 6 and 7). For the 1961 cohort, year 12 completion decreased unemployment duration by a factor of 0.80 at age 22 compared to 0.66 at age 18. For the 1970 cohort the reduction between ages 18 and 22 was less. For the 1965 cohort, no significant effect of year 12 completion was identified at age 22.

School achievement in literacy and numeracy had a slightly weaker effect at age 22 than at age 18 for the older two cohorts, but its effect was significant. An increase of one standard deviation in achievement score reduced unemployment duration by a factor of 0.77 for the 1961 cohort and by a factor of 0.88 for the 1965 cohort. As was the case at age 18, the effect of school achievement is weaker for the 1965 cohort than for the 1961 cohort. For the 1970 cohort, however, the effect of achievement was larger. Therefore,

there is no evidence that the effect of achievement on unemployment duration at age 22 has changed over time.

Gender differences were stronger at age 22 than at age 18. Being female as compared to being male decreased the length of time unemployed by 0.83 times in the 1961 cohort and by 0.78 times in the 1965 cohort. There was no significant effect for gender in the 1970 cohort. The effect of being female is interesting since it is unlikely that at this age women are substantially more likely to leave the labour market.

Well-being had no effect at age 22 for the 1961 and 1965 cohorts but a significant effect was found for the 1970 cohort, where its effect was stronger for women than for men.

Having a degree at age 22 reduced unemployment duration by a factor of 0.64 for the 1961 cohort and by 0.70 for the 1965 cohort. These effects are substantial and are in addition to the beneficial effects of achievement and year 12 completion. In contrast, having a degree at age 22 did not reduce unemployment duration in the 1970 cohort.

There was no effect of an apprenticeship on unemployment duration for those in the 1961 and 1970 cohorts. However, there was a substantial effect for the 1965 cohort, reducing unemployment duration for males by a factor of 0.60.

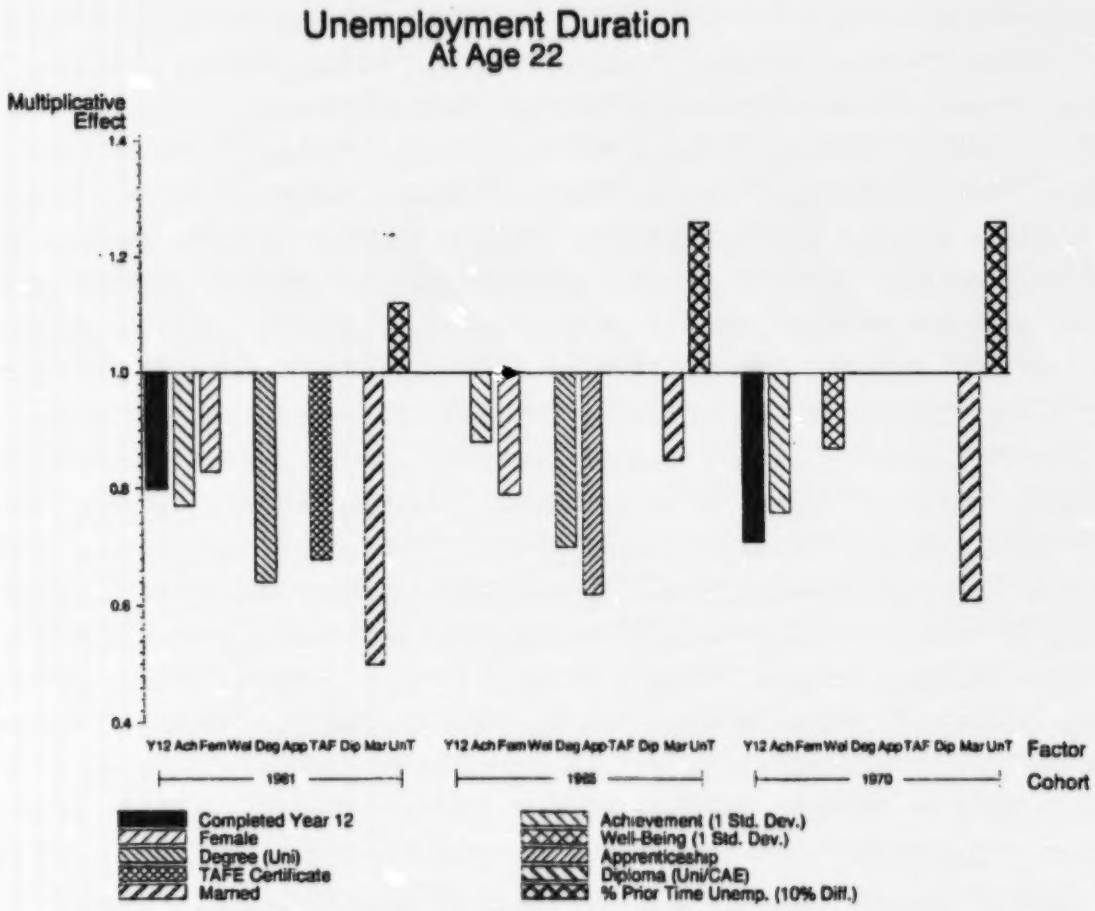


Figure 7 Effects on Unemployment Duration at Age 22

A TAFE certificate reduced unemployment duration in the 1961 cohort but not in the 1965 or 1970 cohorts. Its effect in the 1961 cohort was substantial, reducing the time unemployed by a factor of 0.74.

A diploma gained at a university or college of advanced education reduced unemployment duration for women born in 1961 but not for any other group. This result may reflect the security that teaching qualifications brought about for this group at this time.

Marriage had a strong effect on reducing unemployment duration for the 1961 and 1970 cohorts but had a much weaker influence for the 1965 cohort. While it was not unexpected to find that the effects of marriage were stronger for women than men in the 1961 cohort, in the 1970 cohort marriage had a stronger effect for men.

The strongest effect on unemployment duration was the percentage of time respondents spent unemployed until the previous year. An increase of 10 per cent in time unemployed increased unemployment duration by 1.11 times for the 1961 cohort and by about 1.25 times for the 1965 and 1970 cohorts net of other factors that affect unemployment duration. These are large effects and, as was the case with unemployment incidence, appear to have increased over time (Figure 11). There are two explanations for this finding. Those with frequent and lengthy bouts of unemployment may have become disenchanted with their employment prospects so were less efficient in their job search activities. Alternatively, employers may judge negatively applicants who have spent considerable amounts of time unemployed.

At Age 26

The factors that affect unemployment duration at age 26 are displayed in Figure 8. The logistic estimates are presented in Table A6 of Appendix 2.

At age 26 school achievement in literacy and numeracy has a substantial effect on unemployment duration. For the 1961 cohort, a one standard deviation increase in achievement score decreases unemployment duration by a factor of 0.77. For the 1965 cohort the effect is similar, reducing duration by 0.75 (Figure 8). Figure 10 shows the effect of school achievement on reducing the time unemployed at age 26 for these two cohorts.

Unemployment for women at age 26 was shorter than that for men in the 1965 cohort. On average women's unemployment duration was 0.6 that of men's (Figure 8). This effect was net of the influence of marriage and unemployment experience.

In terms of qualifications, a degree reduced unemployment duration in the 1961 cohort but had no effect in the 1965 cohort at age 26 (Figure 8). A diploma substantially reduced the time unemployed but only for women in the 1961 cohort (Table A6). Other qualifications, including year 12 completion, had no significant effect on unemployment duration.

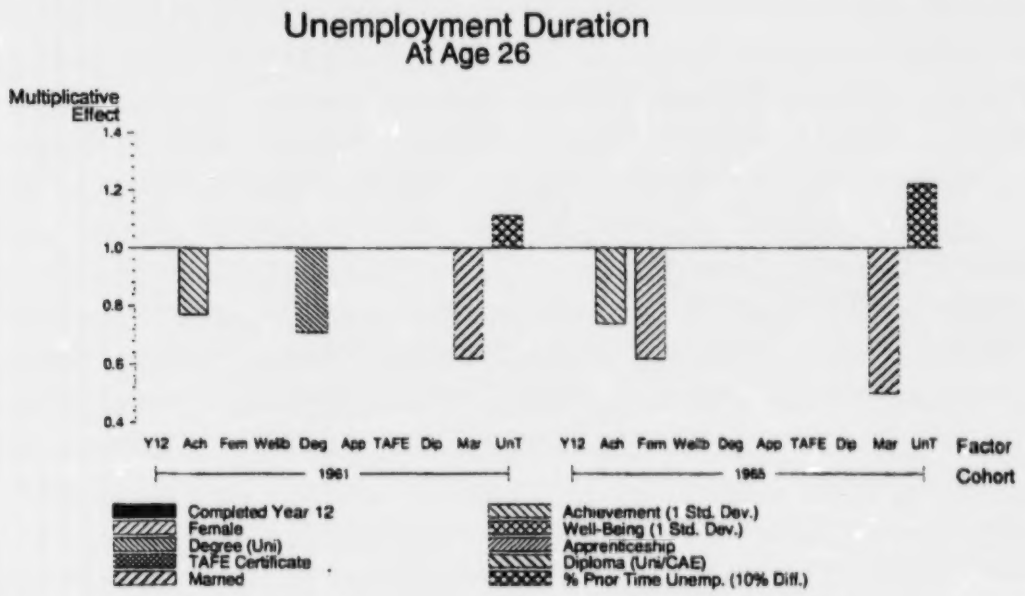


Figure 8 Effects on Unemployment Duration at Age 26

The effect of marriage was substantial in both the 1961 and 1965 cohorts, reducing the time unemployed for both sexes. Its overall effect was stronger for the 1965 cohort (Figure 8). Again, the effect of marriage was stronger for women than for men in the 1961 cohort but stronger for men in the 1965 cohort.

As was the case at age 22, the percentage of time spent unemployed up until the previous year had substantial effects on unemployment. A 10 per cent increase in time unemployed increased unemployment duration by 1.11 times for the 1961 cohort and by 1.22 times for the 1965 cohort. Again the effect of prior time unemployed is stronger in the younger cohort (Figure 11).

At Age 30

Figure 9 presents the multiplicative effects on unemployment duration at age 30 for the 1961 cohort. At age 30 the factors with a significant bearing on unemployment duration were achievement, gender, marriage, well-being (for women) and time spent unemployed. The effect of achievement was similar to its effects at age 22 and 26 with stronger effects for men than for women. The effect of gender was considerable, with women having shorter unemployment spells by a factor of 0.70. Marriage considerably reduced the time unemployed for both men and women, with men experiencing a stronger effect. Time spent unemployed had larger effects at age 30 than at age 22 or 26 (Figure 11). A 10 per cent increase in prior time unemployed increased the time spent unemployed by 1.3 times for men. It had no significant effect for women (Table A6).

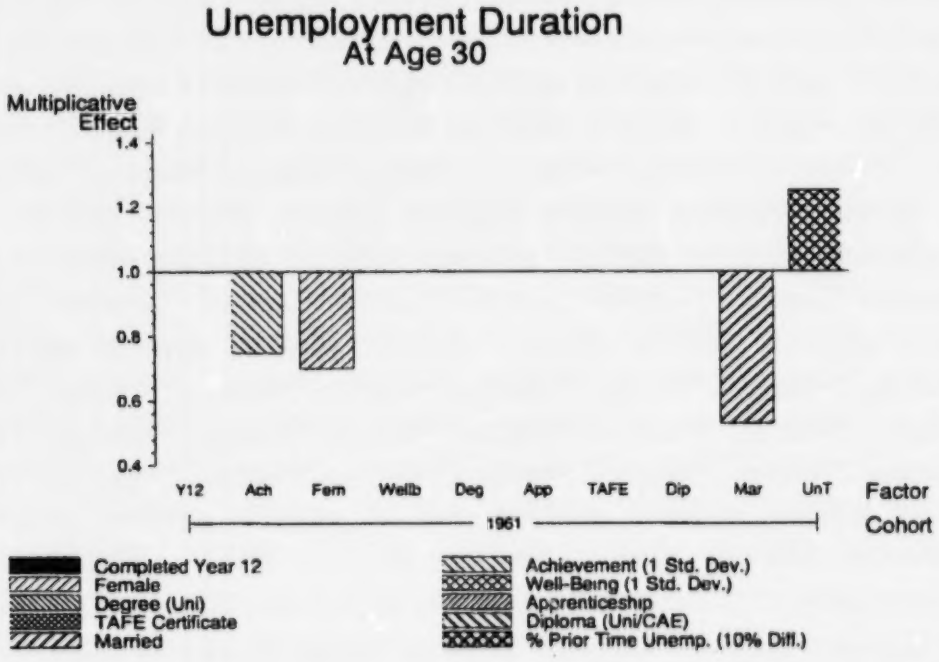


Figure 9 Effects on Unemployment Duration at Age 30

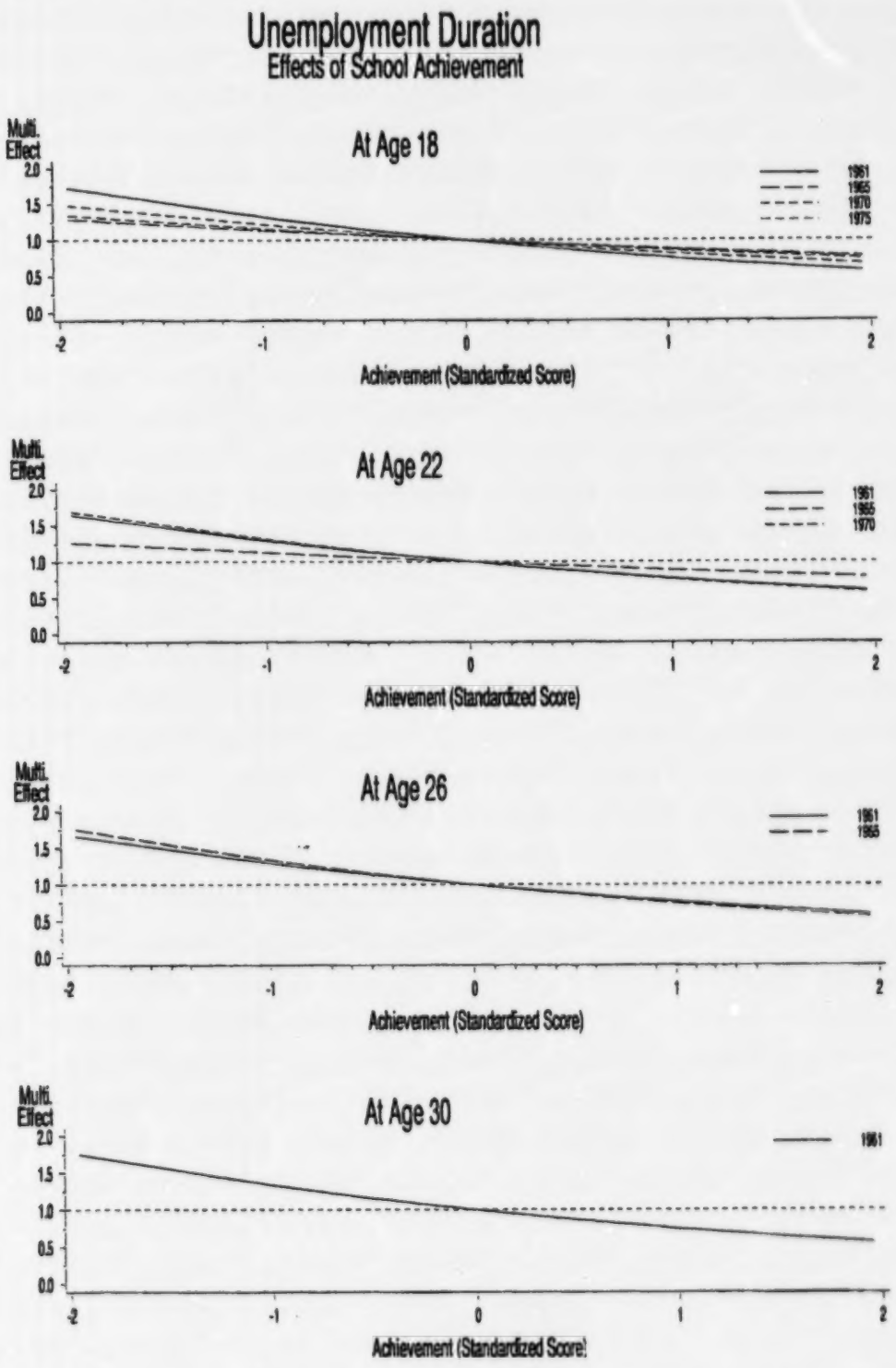


Figure 10 Effects of School Achievement on Duration of First Spell of Unemployment at Ages 18, 22, 26 and 30.

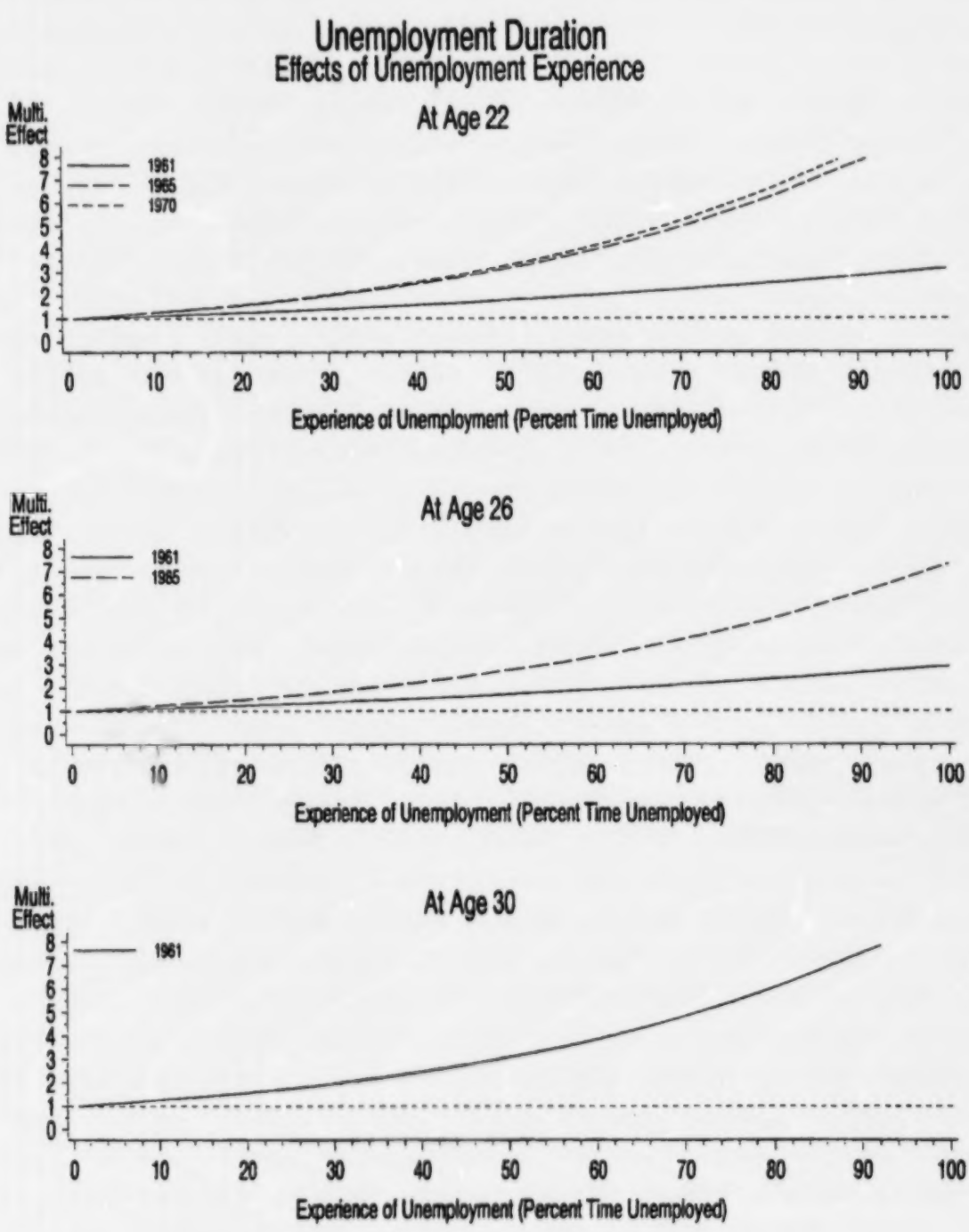

Unemployment Duration
Effects of Unemployment Experience
At Age 22
Multi. Effect
1961
1965
1970
0 1 2 3 4 5 6 7 8
0 10 20 30 40 50 60 70 80 90 100
Experience of Unemployment (Percent Time Unemployed)
At Age 26
Multi. Effect
1961
1965
0 1 2 3 4 5 6 7 8
0 10 20 30 40 50 60 70 80 90 100
Experience of Unemployment (Percent Time Unemployed)
At Age 30
Multi. Effect
1961
0 1 2 3 4 5 6 7 8
0 10 20 30 40 50 60 70 80 90 100
Experience of Unemployment (Percent Time Unemployed)

Figure 11 Effects of Time Spent Unemployed on Duration of First Spell of Unemployment at Ages 22, 26 and 30.

CONCLUSIONS

School achievement (in literacy and numeracy) was found to be the one consistent factor in youth unemployment and unemployment duration. Initial bivariate analyses revealed a substantial gap in unemployment incidence between those with achievement scores one standard deviation above the mean and those with achievement scores one standard deviation below the mean. The effects of achievement were confirmed in subsequent multivariate analyses showing that its effect was in addition to its effects on qualifications and school completion. Furthermore, higher levels of achievement reduced the time spent unemployed. The effects of school achievement on both the incidence and duration of unemployment remains until at least the age of 30 even when controlling for post-school qualifications.

The importance of school achievement contrasts with the negligible effects of qualifications such as degrees, apprenticeships and TAFE certificates on unemployment after controlling for school achievement. Most studies, which examine the effects of qualifications on unemployment, do not usually include school achievement. The implication of these findings is that increasing participation in post-school education, while initially reducing unemployment among teenagers, is unlikely to substantially reduce unemployment in the long-run among those with poor skills in literacy and numeracy.

The important question emerging from these analyses is whether increasing skills in literacy and numeracy among students would substantially lower youth unemployment. Of course this question cannot be definitively answered given the uncertainties about the future of the Australian economy and youth labour markets. However, the findings from this study suggest that increasing such skills should lower youth unemployment. There are two scenarios as to the effect of increasing skills. One is based on theories arguing that employers have a limited number of vacancies and will thus select the best available no matter what their absolute level of skills in literacy and numeracy. On the other hand, the theory of the marginal worker argues the marginal cost of an additional worker is lower if they have higher skills. Given that the youth labour market is likely to be increasingly flexible, the marginal worker argument seems more appropriate. Therefore, higher levels of literacy and numeracy should decrease youth unemployment although the extent of this reduction is difficult to quantify.

Completion of year 12 has a substantial effect on reducing the chance of becoming unemployed for three or more months. Although the proportion of young people completing year 12 has increased during the period investigated, the effect of year 12 completion on unemployment incidence has not decreased in that time. Furthermore, the effect of year 12 completion is independent of the effect of school achievement, suggesting that low achievers should be encouraged to remain at school. The effect of year 12 on unemployment duration is also substantial during the earlier career, but its effect declines as young people age. These findings suggest the continuation and possible expansion of policies that promote school retention, as one way of combating youth unemployment.

Post-school qualifications do not appear to affect the chances of becoming unemployed. This finding was especially surprising for degrees since these are associated with labour

market success such as higher incomes. Even when not controlling for employment experience, degrees and other qualifications did not generally reduce the incidence of unemployment. The important factors are year 12 completion and experience of full-time employment. The lower incidence of unemployment for degree holders appears to be due to fact that almost all degree holders have completed year 12. Our findings suggest that TAFE certificates, apprenticeships and diplomas have minimal effects on unemployment for those youths who did not complete year 12 and have only limited experience of full-time employment.

There was little difference in unemployment incidence, net of other factors, between men and women. However, the addition of labour market experience suggested that men are more likely to become unemployed. Therefore, it seems that young men may, as a group, have greater labour market experience but, if all factors are equal, men are more likely to become unemployed than women. In other words, limited experience of full-time work is more detrimental to men than to women. This result may also arise because employers are more likely to regard limited work experience among women more positively, if attributed to home duties and family responsibilities, than the same amount of work experience among men.

The analysis of unemployment duration shows that men are in a relatively inferior position. Only among unemployed 18 year olds in the 1961 cohort was unemployment duration longer for women than for men. In four other instances, men exhibited longer spells of unemployment than women net of differences on other factors. Furthermore, there was a tendency for the male disadvantage (at the same age) to be greater in the younger cohorts.

Age is also an important influence on unemployment, with older young people being less likely to be unemployed than younger young people. This finding supports the conclusions of Chapman and Smith (1992) and Miller (1987). The effect of age that we see in the 1961 and 1965 cohorts, however, is independent of qualifications or labour market experience, suggesting it is the maturity that is gained with age that is beneficial regarding unemployment. Unpacking this relationship in terms of job search activity, job seeker attitudes, family responsibilities and attitudes of employers is a priority for future research.

Socioeconomic background (parental occupation) did influence the incidence of unemployment, although its effects were smaller when school factors and qualifications were included in the analyses. However, even when all other factors were considered, it did have an impact, suggesting that higher status families have access to resources which help their children find employment.

While it was found that coming from a non-English speaking background did increase the likelihood of unemployment in these youth samples, it was also found that it had little impact when qualifications and achievement were included. It appears that people from non-English speaking backgrounds are more likely to be unemployed because of differences in other factors (mainly qualifications) rather than a direct effect of coming from a non-English speaking background. It is important to note that men from a non-English speaking background are still disadvantaged after taking into account these other factors. Why this only affects men requires further investigation.

Attendance at a non-government school decreased the incidence of unemployment after controlling for other factors. This result was found in the 1965 and 1970 cohorts and the effect was greater for attendance at non-government non-Catholic schools than Catholic schools. These results suggest that Catholic and independent schools either provide students with better job search skills or are a source of networks for their students to obtain work. There is some evidence here of a trend over time since there were no significant differences due to school sector in the 1961 cohort, and the magnitude of the differences were larger in the 1970 cohort than in the 1965 cohort.

A strong influence on unemployment in the 1961 and 1965 cohorts that does not apply to the 1970 cohort is the overall unemployment rate. When the unemployment rate rose, the probability of unemployment within these samples also rose. This relationship is substantial and is stronger in the 1965 cohort than the 1961 cohort. The unemployment rates had very little effect on unemployment for the 1970 sample. There are two explanations for this finding. Either the youth and overall labour market have become more weakly linked or this (1970) cohort has had too little exposure to the labour market for the effects of aggregate unemployment rates to be apparent.

Despite the intuitive sense of the notion of state dependency denotes, the present study does not support the hypothesis of state dependency. That is, the chances of leaving unemployment are unrelated to the length of time unemployed for that particular spell of unemployment. This supports other Australian research on this idea, such as that by Chapman and Smith (1992). However, prior experience of unemployment does substantially increase the length of time unemployed.

Marriage, included in the analyses of unemployment duration from the age of 22, is shown to be a positive influence on leaving unemployment. This probably arises from the greater incentive to gain financial support. Another possibility is that other factors associated with marriage aid the job-search and/or the employment related qualities of the job-seeker. The effects of marriage were not consistently stronger for women than men.

The effect of well-being is positive at age 18; people who report being more content with their lives have shorter spells of unemployment, other factors being equal. It seems unlikely that the effect would completely disappear with age, thus it was probably subsumed by additional variables (added at age 22), such as marriage and unemployment experience.

Labour market history is, not surprisingly, very influential in the probability of being unemployed in any one year or exiting from unemployment. The proportion of time in full-time work during previous years has a strong effect on subsequent unemployment. Unemployment duration is substantially increased by a greater proportion of time spent looking for work. This effect has become stronger over time. These findings reiterate the point that unemployment must be tackled early on by policies aimed at those factors that improve initial labour market outcomes, such as school achievement and completion of year 12.

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APPENDIX 1: DATA AND ANALYSIS

Data

These analyses are based on data collected as part of the *Youth in Transition* project conducted by the Australian Council for Education Research. (This project is now part of a larger series of longitudinal surveys[8]). The four *Youth in Transition* cohorts were born in 1961, 1965, 1970 and 1975. Each cohort had an initial sample size of over 5,000 respondents. The 1961 and 1965 cohorts were, respectively, the 14 and 10 year-old samples who undertook literacy and numeracy tests in the 1975 *Australian Studies in School Performance*. The 1970 sample was the 10 year-old sample who sat similar tests in 1980 for the *Australian Studies in Student Performance*. Achievement in literacy and numeracy was assessed by ACER for the 1975 cohort in 1989, when they were 14 years old. These cohorts were annually sent mail questionnaires, which collected information on their education, labour market, and family situations. [9]

The mail questionnaires included a calendar where respondents indicated what they were doing for each month of the year. The non mutually-exclusive categories were full-time work, part-time work, looking for work, home duties, full-time study and part-time study.[10] These data were cleaned by comparing the respondents' responses to questions on study, occupation and unemployment. Information from the calendar were used to construct measures of unemployment status in a particular year and unemployment duration.

Measures

Respondents were only defined as unemployed if they indicated they were 'looking for work' and were not in full-time employment. If they were also 'looking after house' or working part-time or studying and indicated that for that month they were also looking for work they were still defined as unemployed.[11] Criteria such as availability and hours worked part-time were not used. A respondent was defined as unemployed for a given year if he/she was looking for work for three months or more. Measures based on a shorter period of unemployment include too many respondents unemployed over the summer break and a measure based on a longer period of unemployment excluded substantial proportions of the unemployed. This measure is not the youth unemployment rate defined by the Australian Bureau of Statistics which is defined as the proportion looking for and ready for work who are in the labour force for a given age cohort. The measure used here is similar to the full-time unemployed to population ratio as discussed in the recent federal government's *Youth Employment* report (House of Representatives Standing Committee on Employment, Education and Training, 1997).

Achievement was measured by the respondents' scores on the literacy and numeracy tests they undertook when they were either 10 or 14 years of age. The scores were centred about the means and summed to produce a combined measure of achievement. The combined measure was then standardised to a mean of zero and a standard deviation of one.

Socioeconomic background was measured by the Australian National University socioeconomic scales ANU2 and ANU3 based on parental occupation. These measures were derived from the appropriate coding schemes: CCLO (Classification and Classified List of Occupations) and ASCO (Australian Standard Classification of Occupations). The ANU2 and ANU3 scales are highly correlated (r = 0.92). The ANU2 scale was adjusted so that it ranged from zero to one hundred, as does the ANU3 scale. The occupation data refers to a parent's main occupation. Father's occupation was used if available and mother's occupation used whenever father's occupation was missing. These socioeconomic status scales are used widely in Australian research on social stratification and are parsimonious in terms of degrees of freedom. For details on the occupational status codes see Jones (1989).

Labour market experience is measured by the proportion of the time the respondent was in full-time employment over the period in which data was collected on them during the study. It is lagged to apply to the years before unemployment status was measured and centred at the mean per cent time in the labour force.

All other variables are categorical from which dummy variables were constructed for the multivariate analyses.

Analytical Procedures

The data from all survey years were pooled for both the bivariate and multivariate analyses of unemployment incidence. There are several advantages with this procedure. First, by combining the data for the whole cohort, we minimise fluctuations due to sampling and measurement error. Second, estimating the effects for each single year would produce an overwhelming number of estimates. Third, the effects of missing data are minimised by estimating random rather than fixed effects (Littell, Milliken, Stroup, & Wolfinger, 1996: 115-134). Fourth, this specification is most appropriate since the nature of the data is hierarchical with unemployment status at the level 1 (the repeated measures) and individuals at level 2. And finally, the repeated measures model specification provides more reliable estimates of population parameters and the associated statistical tests for both individual and group effects (Littell et al., 1996).

In the analyses of factors influencing unemployment incidence, the parameter estimates are logits or logistic regression coefficients. Logistic regression was used since the dependent variable (unemployed/not unemployed) is a dichotomy. Ordinary Least Squares regression is not appropriate in the case of dichotomous dependent variables (Aldrich & Nelson, 1984). Throughout the text, these parameter estimates have been converted to odds ratios, denoting the difference in the odds of being unemployed for a one unit change in the dependent variable in the case of continuous variables (such as age, achievement and socioeconomic status) or possession of that attribute in the case of categorical variables (such as gender, year 12 completion, degree and apprenticeship) contrasted with non-possession of the said attribute. The odds ratios are the exponent of the parameter estimate, odds= exp(estimate).

Logistic Weibull models were employed in the analysis of unemployment duration (Allison, 1995:61-109). These models are sometimes referred to as 'hazard' models; in this instance we analysed the 'hazard' of leaving unemployment. Since the dependent variable is continuous (months looking for work) odds ratios were not derived. The

effects can be interpreted in the following way. The logistic coefficients are first divided by the scale parameter to produce the log-hazard (Allison, 1995:65, 69). Taking the exponent of log-hazard gives the multiplicative effect on unemployment duration. These multiplicative effects are presented in Figures 6 to 11. The log hazards can also be used to calculate expected duration in months. For male respondents in the 1961 cohort who have not completed year 12, and have average achievement and well-being scores (these variables have been standardised) their mean unemployment duration is 4.55 months. (This is the exponent of 1.32 divided by the scale parameter 0.87). For those who have completed year 12 but have identical scores on the other variables, their expected unemployment is 3.0 months. Note that the ratio of 3.01 to 4.55 is also 0.66. Unemployment duration for respondents with other characteristics can be calculated in a similar manner. Continuous variables can be interpreted by the change in the log hazard or ratio of unemployment duration for a one unit change.

APPENDIX 2: LOGISTIC ESTIMATES OF MAIN EFFECTS

Table A1 Unemployment Incidence - Background Factors (Model 1)

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	-3.16***	-3.08***	-3.31***	-3.33***	-3.11***	-3.24***	-2.84***	-2.56***	-3.02***
Age (Centred at 25)	-0.16***	-0.13***	-0.18***	-0.14***	-0.10***	-0.17***	-0.03	0.00	-0.05*
Male	-0.06	-	-	0.06	-	-	0.11	-	-
Parental Occupational Status	-0.009***	-0.013***	-0.005*	-0.014***	-0.014***	-0.014***	-0.012***	-0.008**	-0.015***
Non-English Speaking Background	0.16	0.14	0.19	0.22†	0.35*	0.08	0.30*	0.47*	0.13
Major Metropolitan	-0.13*	-0.07	-0.18*	-0.13†	0.03	-0.28**	-0.21**	-0.22*	-0.20†
Overall Unemployment Rate	0.17***	0.25***	0.09*	0.21***	0.21***	0.22***	0.08*	0.07	0.09†

Note. † 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table A2 Unemployment Incidence - Background and School Factors (Model 2)

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	-3.25***	-2.74***	-3.42***	-3.20***	-3.12***	-3.27***	-2.72***	-2.54***	-2.88***
Age (Centred at 25)	-0.13***	-0.12***	-0.14***	-0.13***	-0.10***	-0.16***	-0.03	0.00	-0.05*
Male	0.41***	-	-	0.03	-	-	-0.02	-	-
Parental Occupational Status	-0.005*	-0.011**	-0.003	-0.010***	-0.011***	-0.009**	-0.006**	-0.001	-0.010**
Non-English Speaking Background	0.09	0.26	-0.18	0.19	0.35*	0.03	0.33*	0.62***	0.10
Major Metropolitan	-0.19*	-0.16	-0.20	-0.11	0.01	-0.19†	-0.07	-0.06	-0.10
Overall Unemployment Rate	0.16***	0.19***	0.12*	0.21***	0.21***	0.22***	0.09**	0.08†	0.09*
Catholic School	-0.27*	-0.30	-0.20	-0.26**	-0.09*	-0.39*	-0.26*	-0.34*	-0.20
Independent School	-0.23	-0.35	-0.12	-0.45*	-0.40†	-0.57**	-0.62***	-0.91***	-0.38†
Achievement Test Score (Std.)	-0.33***	-0.35***	-0.30***	-0.27***	-0.15***	-0.41***	-0.31***	-0.25***	-0.37***

Note. † 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table A3 Unemployment Incidence - Background, School Factors and Qualifications (Model 3)

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	-3.13***	-2.56***	-3.35***	-3.17***	-2.95***	-3.38***	-2.49***	-2.27***	-2.78***
Age (Centred at 25)	-0.13***	-0.12***	-0.14***	-0.14***	-0.09***	-0.18***	-0.04	0.01	-0.10**
Male	0.40***	-	-	0.03	-	-	-0.01	-	-
Parental Occupational Status	-0.004†	-0.011**	-0.004	-0.009***	-0.009**	-0.008**	-0.004†	0.000	-0.008*
Non-English Speaking Background	0.08	0.23	-0.16	0.16	0.36*	-0.05	0.27†	0.61**	-0.04
Major Metropolitan	-0.16†	-0.11	-0.17	-0.08	0.05	-0.17†	-0.03	-0.05	-0.03
Overall Unemployment Rate	0.16***	0.19***	0.12*	0.21***	0.19***	0.22***	0.08*	0.06	0.09†
Catholic School	-0.23	-0.26	-0.16	-0.22*	-0.04	-0.38**	-0.26*	-0.40*	-0.13
Independent School	-0.18	-0.32	-0.04	-0.38*	-0.29	-0.55*	-0.57**	-0.84**	-0.34
Achievement Test Score (Std.)	-0.28***	-0.29***	-0.23**	-0.22***	-0.09	-0.38***	-0.25***	-0.22**	-0.28***
Completed Year 12	-0.30**	-0.27†	-0.41*	-0.38***	-0.52***	-0.27*	-0.54***	-0.32*	-0.71***
Degree	0.11	-0.03	0.27	0.37*	0.18	0.50*	0.66***	0.60**	0.74**
Apprenticeship	-0.26†	-0.43**	0.59†	-0.34	-0.49†	-0.21	-0.46†	-0.40	-0.40
Ph.D.	-0.64	-0.97	0.17	0.76	0.65	0.95	-	-	-
Other Qualification (Private)	-0.28	-0.49	-0.12	0.01	0.32	-0.02	0.19	0.03	0.29
Certificate at CAE/University	-2.17†	-1.68	-9.20	-0.28	-0.29	-0.26	0.68†	0.91†	0.54
Certificate at TAFE	0.04	0.02	0.09	0.11	-0.28†	0.38**	0.33**	-0.09	0.60***
Post-Graduate Diploma	-0.01	-0.51	0.31	-0.28	-0.43	-0.15	-0.51	0.08	-1.10
Diploma at CAE/University	-0.41	-0.36	-0.39	0.04	0.02	0.05	-0.61	-0.85	-0.40
Diploma at TAFE	0.18	0.00	0.35	0.21	0.58	0.68*	-0.37	-0.17	-0.58

Note. † 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table A4 Unemployment Incidence - Background, School Factors, Qualifications and Employment Experience (Model 4)

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	-3.54***	-2.57***	-3.61***	-3.31***	-2.45***	-3.62***	-2.45***	-1.60***	-3.05***
Age (Centred at 25)	-0.10***	-0.03†	-0.15***	-0.07***	-0.03†	-0.13***	0.14***	0.25***	0.06
Male	0.87***	-	-	0.44***	-	-	0.24**	-	-
Parental Occupational Status	-0.005*	-0.012***	-0.003	-0.009***	-0.008**	-0.009**	-0.007**	-0.005	-0.009**
Non-English Speaking Background	0.12	0.33	-0.14	0.16	0.46**	-0.10	0.23	0.60**	-0.16
Major Metropolitan	-0.09	-0.01	-0.10	-0.11	-0.15	-0.08	-0.02	-0.10	-0.05
Overall Unemployment Rate	0.13***	0.16***	0.10*	0.15***	0.14***	0.16***	0.02	-0.02	0.04
Catholic School	-0.23†	-0.23	-0.19	-0.31**	-0.28†	-0.39**	-0.34**	-0.57**	-0.15
Independent School	-0.28	-0.62*	-0.00	-0.64***	-0.58**	-0.74**	-0.81***	-1.14***	-0.56*
Achievement Test Score (Std.)	-0.23***	-0.27***	-0.15†	-0.05	0.12*	-0.21**	-0.13**	-0.20**	-0.07
Completed Year 12	-0.42***	-0.59***	-0.40*	-1.40***	1.99***	-1.02***	-1.43***	-1.40***	-1.53***
Degree	-0.22	-0.53*	0.06	0.31*	0.03	0.47†	0.30†	0.16	0.47†
Apprenticeship	0.20	0.12	0.86**	0.45†	0.35	0.44	0.65**	0.65**	0.77†
Ph.D.	-0.45	-0.77	0.28	0.80	0.48	1.05	-	-	-
Other Qualification (Private)	-0.09	-0.18	-0.04	0.26†	0.41	0.26	0.28	-0.19	0.49*
Certificate at CAE/University	-1.64	-0.55	-9.30	-0.11	-0.38	0.02	0.74†	0.92†	0.70
Certificate at TAFE	0.31*	0.39*	0.26	0.27**	-0.12	0.52***	0.34**	-0.09	0.69***
Post-Graduate Diploma	-0.14	-0.69	0.16	-0.51†	-0.69	-0.41	-0.82*	-0.14	-1.51*
Diploma at CAE/University	-0.48†	-0.33	-0.58†	0.13	0.07	0.12	-0.57	-0.61	-0.44
Diploma at TAFE	0.38	0.18	0.54	0.52*	0.03	0.87**	-0.53	-0.34	-0.75
Percent Time Full-Time Work	-0.03***	-0.04***	-0.02***	-0.04***	-0.05***	-0.03***	-0.04***	-0.05***	-0.04***

Note. † 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table A5 Influences on Exiting from Unemployment (at 18 and 22)

	1961 Cohort			1965 Cohort			1970 Cohort			1975 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
At 18 (Intercept)	1.32***	1.30***	1.43***	1.70***	1.66***	1.66***	1.56***	1.41***	1.68***	1.58***	1.59***	1.67***
Year 12 Completed	-0.36***	-0.29***	-0.41***	-0.48***	-0.44***	-0.51***	-0.40***	-0.23*	-0.55***	-0.36***	-0.37**	-0.35***
Achievement	-0.24***	-0.24***	-0.23***	-0.13***	-0.14**	-0.13**	-0.19***	-0.10†	-0.24***	-0.14***	-0.11*	-0.16***
Female	0.09*	-	-	-0.07	-	-	-0.01	-	-	0.10†	-	-
Well-Being	-0.07***	-0.05	-0.08**	-0.11***	-0.11**	-0.11***	-0.07*	-0.14***	-0.02	-0.09***	-0.13**	-0.07†
Scale	*0.87*	*0.85*	*0.88*	*0.97*	*1.00*	*0.94*	*0.93*	*0.94*	*0.90*	*0.93*	*0.89*	*0.95*
N	*2342*	*1083*	*1259*	*1526*	*678*	*848*	*903*	*408*	*495*	*1110*	*409*	*701*
At 22 (Intercept)	1.82***	1.80***	1.70***	1.37***	1.46***	1.08***	1.77***	1.65***	1.76***			
Year 12 Completed	-0.17*	-0.25**	-0.08	-0.08	-0.16	-0.01	-0.29*	-0.13	-0.46**			
Achievement	-0.20***	-0.22***	-0.19***	-0.11*	0.07	-0.14*	-0.23***	-0.21*	-0.27***			
Female	-0.14*	-	-	-0.23**	-	-	-0.15	-	-			
Well-Being	-0.01	0.00	-0.03	-0.01	0.04	-0.01	-0.12*	-0.07	-0.14*			
Degree	-0.35***	-0.22	-0.48***	-0.33*	-0.44*	-0.25	0.07	0.20	-0.01			
Apprenticeship	0.11	0.14	-0.03	-0.43*	-0.49*	-	0.15	0.27	0.20			
TAFE Certificate	-0.30**	-0.20	-0.39**	0.02	-0.24	0.21	-0.20	-0.49*	-0.12			
Diploma at CAE/Uni	-0.30†	0.14	-0.46**	0.18	-0.48	0.40	-0.35	-	-0.31			
Married	-0.54***	-0.51***	-0.57***	-0.14*	-0.17	-0.15	-0.42***	-0.51***	-0.31*			
% Time Unemployed	0.009***	0.013***	0.006†	0.021***	0.019***	0.021***	0.020***	0.024**	0.017**			
Scale	*0.78*	*0.79*	*0.77*	*0.92*	*0.96*	*0.88*	*0.85*	*0.86*	*0.82*			
N	*834*	*435*	*399*	*656*	*297*	*359*	*355*	*163*	*192*			

Note. † 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table A6 Influences on Exiting from Unemployment (at 26 and 30)

	1961 Cohort			1965 Cohort		
	All	Male	Female	All	Male	Female
At 26 (Intercept)	1.55***	1.52***	1.54***	1.96***	1.92***	1.63***
Year 12 Completed	0.08	-0.03	0.07	0.11	0.14	0.02
Achievement	-0.22***	-0.27***	-0.11†	-0.26***	-0.23*	-0.28**
Female	-0.09	-	-	-0.43***	-	-
Well-Being	-0.04	0.09	-0.13*	0.11†	0.16	0.10
Degree	-0.29*	-0.24	-0.27	0.06	0.11	0.06
Apprenticeship	0.13	0.13	0.20	-0.23	-0.18	-0.32
TAFE Certificate	0.03	0.33*	-0.29†	0.03	0.04	0.06
Diploma at CAE/Uni	-0.27	0.21	-0.49*	0.09	0.50	-0.34
Married	-0.39***	-0.33**	-0.45***	-0.62***	-0.67***	-0.64***
% Time Unemployed	0.009*	0.014**	0.001	0.018***	0.020***	0.017**
Scale	*0.84*	*0.79*	*0.84*	*0.90*	*0.94*	*0.85*
N	*505*	*265*	*240*	*306*	*153*	*153*
At 30 (Intercept)	1.63***	1.61***	1.39***			
Year 12 Completed	0.14	0.06	0.14			
Achievement	-0.23***	-0.32***	-0.14			
Female	-0.28*	-	-			
Well-Being	-0.06	0.11	-0.21***			
Degree	-0.24	-0.06	-0.23			
Apprenticeship	0.13	0.19	-0.42			
TAFE Certificate	-0.13	-0.06	-0.27			
Diploma at CAE/Uni	-0.13	0.33	-0.16			
Married	-0.42***	-0.44**	-0.35*			
%Time Unemployed	0.018***	0.024***	0.006			
Scale	*0.80*	*0.75*	*0.77*			
N	*307*	*163*	*144*			

Note. † 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

NOTES

1 For the period 1978 to 1990, Chapman and Smith (1992) note that the long-term unemployment rate is sensitive to rises in unemployment but less sensitive to declines in unemployment.

2 Hui (1991) analysing data from the *Australian Longitudinal Survey* data made adjustments for selectivity bias and concluded there were only minor differences in the coefficients estimated. Focusing on the *Youth In Transition* data, Williams (1987) suggests that non-response is not a serious problem and Karmel (1995:65-70), after performing tests for selection bias, concludes there is no need to be concerned about selection bias in these data.

3 The odds ratios displayed in these graphs are relative to the odds of unemployment for respondents with particular values on the independent variables. For parental occupational status, achievement and employment experience, the comparison is to the respective means; for age relative to the odds of unemployment for respondents 25 years of age and for the unemployment rate relative to the odds of unemployment for an unemployment rate of 6.2 per cent. (The logistic regression estimates for a single factor are invariant to additive transformations of that factor.) For comparison of the odds of unemployment for groups of respondents with other values on the independent variable, the odds ratios can be eyeballed from the plots, for example a comparison of the relative odds of unemployment for 20 year olds compared to 30 year olds in the 1961 cohort is the quotient of the odds ratios; 2.0/0.5 (= about 4); or more accurately calculated from the logistic regression coefficients, exponent[(30-20)*0.13] (=3.7). Therefore, respondents in the 1961 cohort were 3.7 times more likely to experience unemployment for a period of 3 months or more when they were 20 compared to when they were 30.

4 The numbers of female apprentices are small and a substantial proportion is involved in hairdressing and the hospitality industries.

5 When the scale parameter was just above 1, tests were performed to see if the model was poorer if the scale parameter was fixed at 1. The decline in fit was insubstantial.

6 The odds ratios displayed in these graphs are relative to the multiplicative effect of a particular factor on exiting unemployment relative to respondents with particular values on the that factor. For school achievement, the comparison is to the mean achievement level. For unemployment experience the comparison is with respondents who have spent no time unemployed. For comparisons of groups of respondents with other values on the dependent variable, the following formula should is used: Exponent[(x1*e/s1)-(x2*e/s1)], where x1, x2 are scores on the independent variable, s1 and s2 are the respective scale parameters and e is the estimated coefficient.. For example, in the 1961 cohort at 30 years of age the difference in unemployment duration between respondents who have spent 20 and 50 per cent of their prior time unemployed is Exp[(50*0.018/0.80)-[20*0.018/0.80)],=Exp(1.125-0.45),=Exp(0.346), =1.96. Therefore, duration of the first spell of unemployment for those who have spent 50 per cent of the prior time unemployed is about twice as long as that for those who have spent only 20 per cent of the prior time unemployed, other things being equal.

7 The expected mean unemployment duration was calculated as follows. Exp(1.32/0.87)=4.6; Exp(1.32/0.87)-Exp(0.24/0.87)=3.3; Exp(1.32/0.87)+Exp((2*-0.24)/0.87))=2.9.

8 More details on the Longitudinal Surveys of Australian Youth can be found from the ACER web site at http://www.acer.edu.au/lsay/longitud.htm.

9 Subsequent data collection for the *Youth in Transition* project began in 1978 with the survey of a single national sample of 17 year-olds, more than 6000 persons who had been born in 1961. In 1981, 1985 and 1989 similarly sized samples from the 1965, 1970 and 1975 birth cohorts were added to the program. The annual surveys of these samples have yielded information covering: ages 17 to 33 years for the 1961 cohort (finished in 1994), 16 to 30 years of age for the sample born in 1965 (finished in 1995), 15 to 24 years of age for those born in 1970 (finished in 1994), and 14 to 21 years for the youngest sample, those born in 1975. Data will continue to be gathered from this 1975 cohort. Gaps in the otherwise annual cycle of surveys, as in the case of the 1961 cohort in 1985 and 1988, indicate where resource constraints precluded a survey in that year.

10 For some years the calendar questions were not included. In these cases that year's data was not included in the constructed variables.

11 For each year few or no respondents indicated they were studying full-time and looking for work.

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